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PUBLIC HEALTH NOTES

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Amebic Dysentery

The southwest will take special interest in the National Institute of Health's report[1] of the Chicago epidemic of amebic dysentery in 1933. In the first place Dr. A. V. Hardy, of the U. S. Public Health Service, one of the authors of this report, is now in charge of research on the causes of dysentery in the southwest. In the second place amebic dysentery is undoubtedly endemic in the southwest. Cases are reported with some regularity and the early results of protozoologic study indicate that in one locality at least there is a heavy infection.

Apart from our local interest this report has significance wherever scientific medicine is practised. Diagnosticians must bear in mind that they may have to deal with cases of amebic dysentery and the observations of the Chicago outbreak now reported in full are a valuable supplement to available information.

Diarrhea was the commonest symptom reported. It was mentioned specifically in 1,077 cases or 88.6% of the total. It was denied in 18 cases and not mentioned in 120. In 31 cases constipation was at some stage a note-worthy complaint. Blood and mucus were reported in 90% of the severe cases and in 72% of the mild cases in Chicago but less frequently in cases outside Chicago.

One patient suffered from constipation, flatulence, rectal soreness and varying amounts of blood and mucus in the stools. For 4.5 months various diagnoses were made. At the end of that time a stool examination established the existence of amebic dysentery and under specific therapy the symptoms rapidly disappeared. Symtoms of acute abdominal conditions and of rectal disorders were common and gave rise to numerous errors of diagnosis. Abdominal tenderness was sometimes acute and frequently localized. In 3.4% of all cases and in 17.1% of all fatal cases a diagnosis of appendicitis or of appendiceal abscess had been made. Other **mistaken diagnoses were cholecystitis, malignant disease, rectal disorders, malaria** and **typhoid fever.**

Ninety-eight deaths occurred in 1,409 cases. a fatality rate of 7 per cent. However, no death followed prompt diagnosis and adequate specific treatment. "Specific therapy proved to be remarkably effective. On the other hand, non-specific medical measures were usually disappointing and surgical intervention often disastrous."

The report gives what we believe to be the first reliable data on the incubation period in amebic dysentery. This was 1 week or less in 6.7% of cases, 1 to 4 weeks in 59%, 5 to 8 weeks in 24.7%, 9 to 13 weeks in 7.4% and over 13 weeks in 2.2%. In the last group are 2 cases in which the first symptoms were of liver abscess.

1. Bundesen, H. N., et al: Epidemic Amebic Dysentery. Nat. Inst. of Health Bul., No. 166, Washington, D. C., U. S. Government Printing Office, 1936, Pp. 187; Price 20c.

GASTRIC AND DUODENAL ULCER: MEDICAL CONSIDERATION

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(Read before the El Paso County Medical Society)

Reliable recent data indicate the increasing prevalence of peptic ulcer in the United States. It is more prevalent than noted in the British Empire, though less severe. To what may we attribute this increased prevalance—to better diagnosis, to changing dietary habits, to an increased nervous instability, or to the more problematical endocrine disturbances? Mann[1a]

in an experimental study on animals has reproduced ulcers similar to those classified as chronic ulcer in man by acid shunting operations proving that acidity is an important factor in their causation. Toxic conditions manifest themselves in ulcerating lesions though most frequently producing the acute type.

The importance of infection has long since been proven in association with dental abscesses. Rivers and Mason[1b] reporting on 700 surgically verified cases report the presence of gall bladder infection in 13%, and probably 3.3% additional. This complication was more frequent in duodenal than gastric involvement and was more prevalent in women. Hartman and Rivers[1c] reporting a similar number of cases showed evidence of appendicitis in 44.4%. This complication was also less frequent in gastric ulcer. Gastric or duodenal ulcer was found only in 3.2% of 879 surgically verified cases of cholecystitis. Fatigue and poor environment contribute to the general picture.

Smithies[2] considers that peptic ulcer is a complication of a prior mural defect due to many agents to produce arterial defects. The ulcer complication is an accidental involvement of the mucosa. He feels that evidence warrants the opinion that a large majority of the human family experiences these mural defects, but in the majority they fail to include the mucosa and therefore do not manifest themselves.

Hoerner[3] reports peptic ulcer in 42% of animals in which a pancreatic fistula was made. Witherspoon[4] recently reported a traumatic ulcer in a boy aged ten. Rivers and Dry[5] think reactivation of ulcer comes from traumatization of local tissue, erosion made possible by any means which reduces the defensive reaction of tissue, and certain systemic factors of which neurogenic influences are the mosti mportant Feigenbaum and Howat[6] in a study of 67 patients conclude that with a few exceptions no anatomic characteristics were distinctive.

Masten and Bunts[7] report 6 cases of brain lesion associated with erosion and perforation of the upper part of the gastro-intestinal tract, referring to the experimental evidence of the location of para-sympathetic and sympathetic centers in the inter-brain. Vitamin deficiency has its proponents, as reported by McCarrison[1d]. The familial tendency is of importance. No age is exempt, Kennedy[1e] having reported on presence of ulcers in the new born, both acute and chronic. Kunstadter and Gettelman[8] report death in a new born from gastric ulcer hemorrhage. Hanke[9] reports the production of ulcer experimentally by the injection of insulin. Ulcer is one more complication laid at the toxic door of cinchophen.

In a recent review of 534 cases under my treatment studied rentgenologically, duodenal ulcer appeared in 9%, gastric ulcer in 1% and gastric carcinoma in 0.9%. Duodenal and gastric ulcers appeared together in 2 cases. Eusterman[1f] reports ulcer of the duodenum in 12.2% and gastric ulcer in 1% in a series of 15,985 gastro-intestinal casesu ndergoing rentgenologic examination. Twenty-four cases had lesions in both areas. He reports the ratio of duodenal ulcer to gastric ulcer to gastric carcinoma as 12:1:3.

Robertson and Hargis[1g] report active or healed duodenal ulcer in 11.85% of 2,000 postmortem examinations. It is interesting to note that only 38% of these had had diagnoses of duodenal ulcer and in the remaining 62% only a few or no symptoms were reported in the clinical history. The ratio of male to female shows the usual preponderance of 4:1.

Of a series of cases operated at the Mayo Clinic[1h] there was an average duration of symptoms of 10 years in the duodenal groups whereas the average duration of symptoms was only 7 years in gastric involvement. One hundred physicians whose average age at time of operation was 47 years showed a duration of symptoms of an average of 13 years.[1i]. Occupation as a causative factor is considered; however, the reported prevalence of involvement in the far districts does not coincide with our present neurogenic concept.

Ulcers may present an acute or chronic histological picture with a sub-acute intermediate stage. The acute type is most frequently of toxic or septic origin in association with appendiceal, cholecystic, dental, or tonsillar infections. Superficial burns and extra-gastric malignancy may be at fault. The chronic type presents the symptoms with which we are most familiar. It is difficult, and in the vast majority of cases quite impossible, to differentiate clinically between gastric and duo-

denal involvement. Though a careful history may reveal this differentiation, or an increased secretory response may point to the localization of involvement, we usually must rely on radioscopic study.

Possibly only of academic interest in the young, but as the cancer age is reached proper localization becomes more of a necessity, since the management of the 2 types of disease is frequently altered at this age owing to the prevalence of malignant involvement in gastric ulcers in contrast to the practical absence of malignancy in the duodenal. In a typical case of gastric involvement the pain usually occurs in a shorter period of time following meals and usually is automatically relieved without the requirement of food as with the duodenal. The discomfort in gastric involvement is not so easily relieved by food; small amounts may give relief and large amounts distress. An ulcer located near the cardia may give pain before completion of the meal. Rivers[10] reports poor localization of pain in 90% of uncomplicated gastric ulcers. He reports localization of pain to the left upper abdominal quadrant near the costal margin in 90% of cases in the perforating stage. With involvement of the mesentery, mescocolon, and abdominal wall 93% showed secondary shifts to the thorax and neck.

In duodenal ulcers the pain was poorly defined in 64%; 90% in the perforating stage showed localization to the right upper quadrant; 77% of the perforating group showed a shift towards the liver region and the back. It is the group with irregular symptoms, or perhaps with none of the clasical symptoms of ulcer that most frequently results in the more serious complications and taxes our diagnostic skill. Fullness, distress, gas, distention, burning, nausea, vomiting, and vague symptomatology may be complained of, but these are symptoms which may be associated with any other gastro-intestinal conditions. The relation of symptoms one to the other and their response to food or medication often render the correct interpretation. Complicating factors such as appendicitis, cholecystic diseases, irritable colon, other neurogenic disturbances, pancreatic disease, and improper habits such as excessive smoking, may often mask the symptoms of the primary disease. On the contrary it must be remembered that one or more of these complicating factors may be actively present and may require equal attention. Persistent vomiting bespeaks of pyloric obstruction, possible either from cicatrization or spasm. Hematemesis is more frequent in gastric involvement. Blood, if present in the feces, will be intermittent in both conditions. Painless hemorrhage may be present. Both conditions are characterized by chronicity and intermittency of symptoms. Seasonal variation has long been considered as a hint to diagnosis, whether this be due to acute infections or other factors we are unable to say. Hour-glass deformities and slow perforation into a neighboring viscus or the formation of periduodenal adhesion will alter the symptomatology. Hemorrhage, perforation, and pyloric obstruction are more common in duodenal than gastric involvement.

Gastric analysis studies may or may not be of value. Hellebrandt and Brogdon[11] conclude that although fractional gastric analysis is of questionable value for quantitative studies of gastric functions it remains the method of choice for qualitative determinations of gastric acidity and for approximation of secretory capacity. The fasting contents are increased. Increased secretory volume and acid are the rule. The plotted curve shows a rapid rise during the digestive phase and this is maintained to the end of the digestive cycle. Varying degrees of pyloric obstruction may be recognized by gastric aspiration.

The differential diagnosis will be facilitated by a careful history, a proper evaluation of symptoms, radioscopic study, and a careful study of the patient as a whole, taking into consideration his economic, social, and neurogenic background. Too frequently a hyperthyroid state, pulmonary tuberculosis, tuberculous cecum, an ulcer in a Meckel's diverticulum, cardiac pathology, allergy, neurogenic manifestations, hyper-insulinism, syphilis, depressed acid states, functional disturbances, diaphragmatic and epigastric hernia are overlooked or misinterpreted. The failure of response to ideal treatment may be the clue. Harris[1] reports episodes of nervousness and weakness associated with abdominal discomfort, not actual pain, with relief from nourishment as indicative of hyper-insulinism and suggests blood sugar determination during an attack or in a fasting state. Intractable con-

stipation may complicate the picture and cause a persistence of symptoms.

Owing to the chronicity of the condition much attention has been given in recent years to the prognosis of this condition. Of vast importance is the question of the insurability of such cases. They are considered of sub-standard risk and a period of relief of symptoms is demanded by most insurance companies for consideration of their application. Nielson[11] states that death from hemorrhage or perforation is infrequent, that death is even remote in the rebellious cases, and the more chronic the lesion the less likely the cure.

Emery[12] in a study of 1435 cases concludes that the disease remains active after both surgical and medical treatment, that the higher percentage of cures by surgery is offset by the higher percentage of failures and that the aim should be to prevent relapses; and this requires a carefully regulated schedule. Emery and Monroe[13] in a study over a long period of years concluded that the disease tends to persist throughout life when once it is established and that the disease is rarely fatal and as a rule does not shorten life. It is subject to complications, but in the average case does not tend to get worse as time goes on.

Considerable attention has been accorded treatment in recent years with several new methods and suggestions. It is also interesting to note the encroachment of the diet faddist and the commercial firms in this field. On personal inquiry from one of the leading druggists in the city it was learned that they had 20 proprietary and 2 patent antacid preparations in stock as best-sellers with many more of both types decorating their shelves, but in less public demand.

DePew[14] reporting on the treatment of peptic ulcer, reviews the treatment of ulcer by hypodermic injections of pepsin, the sugar cure of Strauss, subcutaneous injections of posterior lobe pituitary, aluminum hydroxide, mucin, the continuous alkalinized milk drip advocated by Winkelstein, injection of parathyroid extract, bromide and belladonna, the effect of amino acids in the evolution of experimental ulcers, dehydrated okra powder, Brook's hemo-protein, Saunder's vaccine, intravenous injection of emetine hydrochloride, and his own experience with the use of synodal. He reports 41 cases treated by him by this method with a recurrence in three, one of these showing improvement under a second course of treatment. He advocates Sippy diet and rest in bed as adjuncts in the treatment. He reports the remainder of the cases yielding nicely to this mode of treatment.

Fogelson[15] in reporting his use of mucin states that a preliminary investigation has suggested the lack of mucin in many patients with ulcer. He quotes Hurst as observing a deficiency of mucin in 10% of young adults whom he thinks are predisposed to the formation of ulcer. It is agreed that mucus has the function of protection and lubrication. His study of questionnaires on 494 patients showed the ability of gastric mucin to control all symptoms in 70.5%, partial relief in 23%, with failure to afford relief in 6.5%. In 217 patients with intractable ulcer who were not relieved by medical management, of whom 69 had been submitted to previous surgical procedure, gastric-mucin afforded complete relief in 63.1%, partial relief in 29.4% and no relief in 7.5%. He concludes that this last group suggests the possibility of obtaining symptomatic relief with mucin in a relatively high percentage of cases in whom accepted orthodox methods had failed.

Eads[16] in reporting on 35 cases treated by injections of a 4% solution of histidine hydrochloride concludes that peptic ulcers, non-obstructive in type, with comparatively short histories appear to respond best to this treatment. The gastric ulcers show more rapid improvement than duodenal. That if of value, its chief benefit would appear to be in the elimination of dietary and medicinal regime. Rivers[17] reports administration of duodenal extract in 8 cases. Jones[18] in a series treated with insulin reports an increase in gastric secretion with corresponding improvement of appetite and decrease in total acidity and free hydrochloric acid.

Sandweiss and Meyers[19] reporting a series of 33 cases treated with a Park-Davis stock vaccine showed remission of symptoms in 77% but states that a cure should not be anticipated. Einsel, Adams, and Meyers[20] state that aluminum hydroxide gives rapid improvement of symptoms without toxicity and shows a lowering of free hydrochloric acid, and does not stimulate a later increase of hydrochloric acid. Woldman and Roland[21] advocate the

control of acidity by the continuous drip of aluminum hydroxide.

Jordan[22] reports that healing took place in 75% of a series of perfectly controlled cases within 10 weeks of treatment by the conservative method. Atkinson[23] reports the relief of pain and the production of remissions in a large percentage of cases by the treatment with okrin. Cecil[24] quotes Pribram in the treatment by intravenous injections of novo-protein with relief of pain in from 50 to 60% of the cases, and x-ray evidence of healing. Bastedo[45] in a study of atropine and belladonna concludes that in doses sufficient to get results they produce disagreeable and distinctly harmful by-effects that persist long after the stomach action has ceased. Gaither[26] quotes personal communications from Rosenberg, Garbat, T. R. Brown, and Aaron as showing no enthusiasm regarding parenteral methods. He quotes Ralph C. Brown as favoring the conservative method to the use of mucin. Silicon dioxide is recommended in the chronic indolent cases, but is best avoided in cases with any tendency toward bleeding. Gaither[26] advocates conservative methods admitting an open mind for future development in the radical field.

It is regrettable, and even deplorable, that gastric and duodenal ulcers are too often treated by routine didactic principles recommended for the disease rather than by treatment and study aimed at the individual case. The routine use of any type of diet whether it be the Sippy regime, that advocated by Smithies, or methods advocated by foreign authors may prove unsatisfactory. All have their merits, and yet every patient cannot tolerate the strict enforcement of any of these methods. Not every patient can tolerate hourly feedings and those who can for a few days may later show signs of intolerance in the early afternoon. In the dietary management certain general principles should be applied; frequent feedings are essential for the control of excessive acidity, elimination of roughage and foods difficult to digest, a study of the patient's food idiosyncrasies with special reference to food sensitization, and attention to building the diet slowly enough to meet the requirements with attention to essential elements.

Neurogenic and other complicating factors must be recognized and given their proper attention. Sedatives are of value and often are indispensible, such as bromides or phenobarbital alone, or in combination with one of the belladonna group. Attention should be given to proper elimination, but only mild preparations which will not produce intestinal irritation are indicated. Alkalies are to be given if needed. I do not favor their frequent administration. The newer preparations such as kaomagma, colloidal kaolin, and others of this type are of definite value.

Treatment should be continued for a period of at least 1 year with frequent secretory and radioscopic observations. Every effort should be extended in obtaining the cooperation and understanding of the patient with careful explanation to him of his condition, the purpose of the treatment, and the probable failure of relief if he does not adhere to a strict regime. Exercise is to be advised as indicated. Bed rest is desired when practical, unless the emotional status seems to contra-indicate. Elimination of tobacco and liquor is often of great value in treatment.

Special emphasis should be given to regular habits of living, stressing the importance of eating slowly and at regular hours, with the observance of intermediate feedings. If alkalies are administered the symptoms of alkalosis should be watched for. If they occur alkalies should be discontinued immediately and fruit juices given in large quantities. Alkali therapy should be guarded in cases showing evidence of renal or liver damage, and arteriosclerosis, as advocated by Wilkinson and Jordan[27].

Perforation is to be treated by immediate surgery. Evidence of a perforating lesion demands immediate bed treatment.

Massive hemorrhage requires emergency treatment. Complete rest, mental, physical, and physiological is mandatory. Morphine or dilaudid as suggested by Hendon[28] may be given as often as every 2 to 4 hours as required. Smithies[29] advocates doses as large as 0.5 to 1 grain as often as every 2 to 4 hours if required. Nothing should be given by mouth until bleeding has definitely ceased or for a period of 3 to 4 days after hemorrhage has ceased. If required, fluids may be administered subcutaneously or by rectal administration. Smithies[29] advocates small repeated transfusions when necessary. Where the blood coagu-

lation is low he advises 200 c.c. of a 1% solution of sodium bicarbonate and 20 c.c. of a 5% solution of calcium chloride. He further advises extremely hot moist applications tightly bound to the abdomen as preferable to the conventional ice bag. A nutrient enema of 8 ounces of normal salt solution, 30 c.c. of glucose syrup, 30 c.c. of 50% alcohol to be given 4 times in 24 hours. The head and shoulders should be placed low. If vomiting persists and is copious lavage with normal salt at a temperature of 110 degrees as suggested by Rodman is also advised by Smithies. This, however, does not have universal approval.

Hendon[28] recommends venoclysis of 10% glucose in Ringer's solution or normal saline for varying periods of 10 days. MacGuire[30] advocates the use of small quantities of ice water, 200 to 300 c.c. each of chilled ferric chloride 1-1000 solution, and also silver nitrate solution 1-1000, glucose solution up to 50%, and adrenalin solution to be introduced if desired through a levine tube. Increasing pulse and falling blood pressure are evidence of continued hemorrhage.

A case under my treatment at present showed a drop in blood pressure to 58/42 within 2 hours after noticeable symptoms of hemorrhage. After bleeding has ceased and the blood pressure has risen a secondary drop is frequently noted after several days, but in association with a pulse of normal quality and rate, with absence of blood in the stool this is not significant. Blood may continue to be present in the feces 6 to 9 days after hemorrhage has ceased.

In conclusion: The successful management of gastric and duodenal ulcer demands an exhaustive study of the patient; and the treatment must be individualized. Unsuccessful progress after a reasonable period suggests incomplete diagnosis, failure of cooperation of the patient, possibly a poor understanding of his condition, or the need of surgical interference. I further emphasize that the disease is one of marked chronicity characterized by remissions, and that the best available statistics fail to show permanent relief in a percentage higher than 75. Furthermore, all gastric ulcer casts in the cancer age submitted to medical treatment should be closely observed clinically for change in symptoms and radioscopically for proof of complete disappearance of the defect and its continued absence.

Any case of either duodenal or gastric ulcer that fails to respond to ideal medical treatment must be individualized.

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ALLERGIC DISEASES OCCURRING WITH TUBERCULOSIS

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If the importance of a subject may be judged by the frequency with which it appears in current literature, this is one of minor consequence. However, since the literature is not overly filled with discussions of these maladies occurring concomitantly, it would seem appropriate to contribute a few more cases of allergic diseases complicating tuberculosis.

Most of the statistics reported are on the occurrence of asthma and tuberculosis without reference to other allergic diseases and they vary greatly. Harkavy and Hebald[1] proved tuberculosis in 40 of 400 asthmatics—a rather high percentage. Shroder[2] found 30 cases of asthma among 4716 cases of tuberculosis (0.7%). Rackemann[3], among 1074 asthmatics, found 13 cases of tuberculosis (1.2%). Klenitz[4] noted 8 tuberculous cases among 423 cases of asthma (1.9%). Taub[5] found 8 cases with clinical and x-ray evidence of pulmonary tuberculosis in 100 asthmatics. Reisman and Mason[6] report positive tuberculin tests in 38% of 158 children with asthma and in only 17% of non-asthmatic children. From these figures we find a great discrepancy in the percentage occurrence of asthma and tuberculosis.

Lichtenstein[7] in studying the effect of treatment of hay fever in tuberculous patients, reports "about" 10 cases of ragweed pollenosis out of "about" 1000 cases of tuberculosis. There seems to be no other reference to the occurrence of hay fever in tuberculosis, so percentages cannot be compared with the figures here presented.

Conflicting opinions exist regarding the etiological relationship between asthma and tuberculosis. Some formerly believed that the presence of one of these conditions precludes the occurrence of the other. Others have gone to the other extent by claiming that tuberculosis may be the direct cause of asthma; views all the way from one extreme to the other have been reported. My experience makes me take the middle ground; they occur together not infrequently, and there appears to be no justification for the belief that tuberculosis plays an important role in the etiology of asthma, or vice versa.

This study is based on the patients admitted to the Southern Pacific Tuberculosis Sanatorium; employees upon whom the diagnosis of tuberculosis has been made, are sent here from all over the Pacific system of this railroad, which includes Oregon, California, Nevada, Utah, Arizona and New Mexico. Theoretically, only patients with tuberculosis are admitted. There have been 329 admissions; of this number there were 5 asthmatics who had no demonstrable active tuberculous lesions, 3 with neither tuberculosis, nor asthma. This leaves 321 proven cases of tuberculosis.

Thus when the 5 non-tuberculous asthmatics and the 3 that had neither tuberculosis nor allergic diseases are excluded, allergic diseases occurred in 17 of the remaining 321 tuberculous patients or 5.3%. The term "non-tuberculous" is used here to mean that there was no clinical, laboratory or x-ray evidence of active tuberculosis. One of the non-tuberculous asthmatic patients had pneumoconiosis with asthma; one had asthma and was admitted to convalesce from an empyema following lobar pneumonia; and in the remaining 5 asthmatics there was x-ray evidence of calcified hilar nodes, a pleural cap or some increased peribronchial markings and no evidence of active tuberculosis. Hence, they are classed here as non-tuberculous although admitted as patients with tuberculosis. While the number of allergic cases is limited, the comparison with the number of tuberculous cases makes it significant and our percentage is somewhat higher than others quoted above. Furthermore, in a previous communication, I[2] have pointed out that in our geographical location, allergic manifestations are a little more prevalent than in the country at large, notwithstanding the fact that several prominent allergists do not agree with that contention.

TABLE I.

Total Number of Patients	Total Non-T.B.	Total Proven T.B.	Total Allergic Patients	Total Allergic Non T.B. P'nts	Total Allergic T.B. Patients
329	8	321	23	6	17

MANIFESTATION OF ALLERGY OCCURING IN THE 17 TUBERCULOUS PATIENTS

Hay Fever	Asthma	Urticaria
12	4	3

TABLE II.
HAY FEVER AND TUBERCULOSIS

Patient Number	Classification T. B.	Sputum For T.B.	Asthma	Pollen Sensitive	Food Sensitive	Treated with Pollen	Result H.F.	Condition T.B. on Discharge
5	Advanced	Positive	Yes	3	Yes	Yes	Fair	Improved
10	Far Advanced	Positive	No	3	Yes	Yes	Good	Improved
36	Far Advanced	Positive	Yes	3	Questionable	Yes	Good	Dead
43	Minimal	Positive	No	3	No	Yes	Good	Arrested
122	Questionable	Negative	No	3	No	Yes	Excel.	Arrested
133	Advanced	Positive	No	2	No	Yes	Good	Arrested
196	Minimal	Negative	No	3	Yes	Yes		
236	Advanced	Positive	No	3	No	Yes	Good	Improved
264	Far Advanced	Positive	Yes	1	No	Yes	Good	Improved
276	Advanced	Positive	No	3	No	Yes	Good	Arrested
312	Advanced	Positive	No	12	No	Yes	Good	Quiescent
73	Far Advanced	Positive	Yes	4	Yes	Yes	Fair	Dead

TABLE III.
ASTHMA AND TUBERCULOSIS

Patient Number	Active T.B.	Classification T.B.	Sputum for T.B.	Sensitive To Pollens	Sensitive To Foods	Treated with Pollen	Result Asthma	Condition T.B. on Discharge
5	Yes	Far Advanced	Positive	Yes	Yes	Yes	Good	Improved
73	Yes	Advanced	Positive	Yes	Yes	Yes	Fair	Dead
120	No	----------	Negative	No	No	No	Fair	Improved
145	No	----------	Negative	Yes	Yes	Yes	Good	Improved
159	No	----------	Negative	Yes	Yes	Yes	Excel.	Mark. Improve.
259	No	----------	Negative	No	No	No	Fair	Improved
264	Yes	Far Advanced	Positive	Yes	No	Yes	Good	Improved
337	No	Minimal	Negative	Yes	Yes	Yes	Excel.	Improved

Table I shows the incidence of three manifestations of allergy—12 had seasonal hay fever, 8 had asthma (4 of whom had no active tuberculosis, yet they show in table III) and 3 had urticaria—granting that urticaria is an allergic manifestation.

One of the urticaria patients has diabetes complicating his tuberculosis. A different brand of insulin from that he had been taking was used. After several days he developed urticaria. Upon returning to his original brand, the urticaria disappeared. Intracutaneous tests with both brands showed negative to his original brand while the one he was taking when he developed the urticaria was strongly positive. Administration of the latter subsequently caused a recurrence of his urticaria. The other two urticarias offer nothing of special interest.

The treatment of hay fever in the tuberculous differs none from its treatment elsewhere; this has been pointed out by Lichtenstein[7]. Pulmonary tuberculosis is no contraindication to the parenteral administration of pollen extracts. On the contrary, it makes its treatment more imperative than in the so-called normal patient because of the untoward effect hay fever paroxysms have on the progress of the lung condition. Lichtenstein[7] showed that pulmonary tuberculosis was more rapidly progressive in patients with hay fever which was not treated than in the patients who had no hay fever or in those who had hay fever successfully treated.

From table II it is seen that all of the seasonal hay fever patients were treated with pollen injections in what is usually called the accepted method. Usual dosage was used. Good to excellent results in controlling hay fever symptoms were obtained in all patients treated except one. Of greater interest, however, is the effect this treatment has on the tuberculous lung. One of the 9 died in the institution. He had hopelessly far advanced tuberculosis when admitted. Five were discharged with pulmonary condition arrested. The tuberculosis in the remaining is improving: 1 has been discharged and is continuing his effective pneumothorax as an out patient. One had a chronic, slowly progressive fibroid lesion; his lung condition is such that he has been able to return to work. The third patient, who also

has lues and renal tuberculosis was considered unfit for thoracoplasty a year ago. He has now had the operation and been discharged in good condition, so obviously his pollen therapy has had no adverse influence on the healing of his pulmonary lesion.

These few cases add more weight to the contention that parenteral administration of pollen extracts has no untoward effect on the tuberculous lesions, since all, except the one who was hopeless at the start, have had marked improvement in pulmonary condition while being treated with pollen extracts.

For the good of the tuberculosis, it is imperative to treat their hay fever. It is of much greater importance to treat asthma effectively in pulmonary tuberculosis. There is probably no complication in tuberculosis that will make an arrest of the pulmonary disease more unlikely than asthma, not excepting diabetes and syphilis.

It will be noted in table III that 4 of the asthma patients had no active pulmonary tuberculosis and these 4 do not show in table I. Of the remaining 4 case No. 264 appears also in the hay fever group. He is the patient mentioned above who had syphilis, renal tuberculosis and who has had a thoracoplasty. His asthma occurs very rarely as a complication of seasonal hay fever. Case No. 5 also in the hay fever group is the one described above with the fibroid phthisis. His asthma was of much greater importance than was his hay fever and while he has returned to work, the present condition of his asthma is unknown to us. Case No. 7 was a far advanced tuberculous case on admission, with rapidly progressive lesions. His asthma complicated seasonal hay fever; treatment was fairly successful in keeping him free from hay fever and asthma until he died from tuberculosis.

Of the 5 without active tuberculosis, 4 reacted well to pollen therapy and avoidance of other offenders, non-specific measures, climatic changes (most of them were sent in from elsewhere on the Southern Pacific Lines) etc. One with pneumoconiosis was discharged to return to work in Oregon; with the onset of winter his asthma recurred and he returned to the sanatorium. Changes of climate has caused a marked beneficial change in his asthma.

In no case was there any evidence to show that the pulmonary lesion was aggravated nor that a latent tuberculosis had been activated while his asthma was being treated.

Summary and Conclusions

So few references are found of allergic diseases complicating tuberculosis, it seemed timely to contribute a few more cases of these diseases in combination.

Analysis is made of 17 allergic patients among 321 cases of tuberculosis (5.3%), 12 hay fever, 4 asthma and 3 urticaria.

Untreated allergy in tuberculosis makes the prognosis of the tuberculosis graver.

Conversely pollen treatment per se does not influence the pulmonary lesion adversely.

Treatment of allergy in tuberculosis does not differ from its treatment in any other patient.

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PULMONARY COMPLICATIONS IN ATROPHIC ARTHRITIS

A Report of Two Cases

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In a survey of 250 records of atrophic arthritis of the Desert Sanatorium, 17 cases had histories of acute and chronic non-tuberculous pulmonary infection, and 6 had pulmonary episodes while under treatment. The question immediately arose as to whether pulmonary infection could have played a specific role in these cases.

Two methods of approaching the problem were possible: A statistical survey, or a detailed analysis of a few cases that had been observed over a long period of time. A statistical survey, while yielding certain information, would have been subject to the limitations met in dealing with old case records. As many of these patients had either not been

seen by the present staff, or were no longer under observation, or both, it was decided to use 2 cases because of the length of time they had been under continuous observation, both before and after pulmonary infection occurring in the sanatorium.

The literature abounds in material on foci of infection in relation to arthritis. Since the day of Frank Billings waves of enthusiasm for the removal of focal infections have swept the medical field. Although striking recoveries have followed eradication of infections results frequently have been disappointing. Many medical men still hold the opinion, however, that atrophic arthritis is an infectious disease, and that local infections play an important part both in initiating and continuing it. There has been a neglect of the lung as a possible source of infection. Recent literature on arthritis has practically nothing on the subject. Lack of interest in infections of the lung may be due to its inaccessability to surgical and medical therapeutic procedures. Cecil and Archer[1] "have never seen a single case of infectious arthritis that could be definitely attributed to pulmonary infection." There is, however, a school of thought in France that feels there is a special type of arthritis associated with pulmonary tuberculosis. Several workers have stressed the limitations of the infection theory.

Pemberton[2], 10 years ago, pointed out that the arthritic is prone to develop local infections, and as the arthritis improves, even obviously infected areas may become healthy again without local therapy.

Both patients to be discussed have had foci of infection throughout most of their illnesses. Both have had the tonsils early incriminated and removed, infected teeth removed, and have had signs of infection of the lungs. Both are suffering from exceedingly severe chronic progressive atrophic arthritis. One has involvement chiefly of the spine and hips and the other of the peripheral joints.

Case 1 is a white unmarried male, 37, with a progressive spondyloarthritis ankylopoetica (atrophic arthritis of the spine) with involvement also of the hips, shoulders, knees, and temporo-mandibular joints. He also has had an ischio-rectal abscess, first appearing 3 years after the onset of the arthritis, and recurrent attacks of iritis.

The past history is non-contributory. He gives no history of repeated colds, recurrent bronchitis, or chronic sinusitis.

His mother and a maternal uncle died of pulmonary tuberculosis.

He entered the sanatorium in October, 1933, extremely debilitated. Excepting his joints, an irregular left pupil, and a discharging anal sinus, physical examination was negative. His blood pressure was 104/70. Blood counts were normal save for a slight increase in white cells. His urine showed one plus albumin, occasional red and white blood cells, and 2 to 5 hyalin casts per high power field. The serology was negative. An intracutaneous tuberculin test was positive to .001 mg. O. T. The sedimentation rate was 80 at the end of 1 hour by the Westergren method. A film of his chest showed healed primary tuberculosis.

He was given blood transfusions with slight temporary improvement; but his condition remained nearly static until August, 1934 when an unsuccessful attempt was made to clean up the draining rectal abscess, and he began to lose ground. By the first week in November he had abdominal distress, iritis of the left eye, generalized aching and a productive cough. A chest film showed nothing new. Sputum examination revealed a variety of organisms. No acid-fast bacilli were seen on smears, and guinea pig inoculation was negativef or tuberculosis. His temperature which had been rarely over 99.4° went to 100.4° each day. On November 13 fine rales were heard below the hilar area in the left interscapular region. X-ray examination showed a basal patchy involvement and a dense interlobar fissure on the left. By November 26th clinical and x-ray evidence existed of a right central pneumonia. The left chest was now entirely clear. The temperature fell during the following week, and he seemed to have no ill effects from the pneumonia. An x-ray picture on the 4th of December showed the lungs practically normal. During this episode of about 1 month, his white count had ranged between 12,000 and 32,000, and the sedimentation rate had risen to 160. Immediately after this he developed a low grade cellulitis of the left buttock. This subsided after a week, and was followed by profuse drainage from the rectal abscess.

His condition changed little throughout the next year. In spite of efforts at prevention, his

knees and hips became stiffer. In the fall of 1935 the rectal abscess healed spontaneously and completely and he has been almost afebrile. For the past 4 months his general condition has definitely improved.

As the pneumonia was migratory and finally in a central location, certain questions may be raised as to its nature. It is possible that a low grade chronic infection near the hilum had existed, and that the debilitated state permitted it to spread. Inasmuch as a relatively large amount of pathologic change must be present to show on films, this possibility cannot be excluded. Features of this case suggest tuberculosis, but sputum examinations and guinea pig inoculations were negative for tubercle bacilli. Furthermore, biopsy of rectal abscess tissue revealed no tuberculosis. A most reasonable assumption is that this episode was an intercurrent migrating bronchopneumonia differing little from that in other patients in similarly debilitated conditions regardless of the nature of the underlying diseases. As clinical evidence did not show that this process had direct effect on the joints, it is unwarranted to maintain that it bore an etiological relation to the arthritis.

The next case is one with a recurrent broncho-pneumonia and pleurisy of a certain area, always with the patient's menses—in 5 of 7 successive menstrual periods. In 4 there were signs and symptoms of pleural involvement, and in 2 of the late attacks there was x-ray and clinical evidence of a patch of bronchopneumonia in the right lower lobe.

Case 2 is a married woman of 25 with severe atrophic arthritis for the past 4 years which began following an interesting sequence of events: Diseased tonsils during her only pregnancy, a post-partum neuritis, tonsillectomy, mild scarlet fever and then arthritis. All this occurred within a few months. In spite of various therapeutic procedures the arthritis has progressed steadily, and when she came to us in October, 1934, in the third year of her disease, practically every peripheral joint was involved as well as the temporo-mandibular joints and the cervical spine.

Her past history is non-contributory. She has not been subject to repeated colds, bronchitis, or sinus infections.

Her maternal grandmother developed a severe form of arthritis when she was past 60 years of age.

Excepting for the joints physical examination of the patient was not remarkable. The lungs and the heart seemed normal in all respects. Her blood pressure was 112/76.

Her blood count was normal except for hemoglobin of 81%. Her urine was normal. The sedimentation rate by the Westergren method was 165 at the end of 1 hour. The Kahn was negative. She did not react to 0.1 mg. of O. T. intracutaneously.

She remained in the sanatorium until June, 1935. Her course was uneventful, and she made a good general improvement, gaining 15 pounds. Her hemoglobin rose to 94%, and her sedimentation rate fell to 48. Joint function, however, made little change. Once during this admission, 2 days prior to a menstrual period, she developed an acute effusion in her right knee, and a temperature of 99.8°. Her temperature at all other times was practically normal.

When the patient re-entered the sanatorium in August of the same year her joints had become stiffer. The first 2 weeks her temperature was regularly 99.2°. On September 4th she developed a temperature of 100.4°, and a complete anorexia, but no vomiting or other gastro-intestinal disturbances. The following 2 days her temperature went to 100.0°. The white blood count remained 7300. Although she felt general stiffness, there was no flare-up of joint symptoms. The next day her menses began—1 week early. Her temperature did not go above 99.0° that day, and she felt much better.

The patient was then given 4 blood transfusions—without febrile reactions. Urticaria followed the last two. Her next menstrual period was uneventful. On October 22nd she was exposed to a draft, and developed a temperature of 100.0° that evening. She was afebrile the next day and continued so for 1 week. The third day prior to her menstrual period she complained of pain in the right chest. The next day the patient's temperature went to 100.0°, and the chest had signs of fluid and consolidation at the right base. An x-ray confirmed the diagnosis, and showed evidence of an interlobar pleurisy, between the right middle and lower lobes. The next day she felt

a little better and her temperature did not go above 99.8°. The following day her menses began and her temperature became normal. An x-ray picture 4 days after this episode showed a small amount of fluid in the right costo-phrenic angle. There had been no flare-up in joint symptoms.

On November 24th, 2 days prior to a menstrual period, she complained of feeling tired, and her temperature which had been normal for several weeks went to 99.6°. The next day she felt depressed, and complained of pain in the right chest. There were no specific joint complaints. Her maximum temperature was 99.4°. The following day her menses began. She felt pretty well, and had no fever. The chest pain persisted for another day or two.

She remained completely afebrile until 2 days prior to her next menstrual period. She then complained of feeling chilly, and of a general aching. Her temperature rose to 102.0°, and her white blood count was 14,800. There were signs of consolidation in the right lower chest. The next day she felt slightly better and her temperature reached a maximum of only 99.8°. An x-ray picture showed increased density in the right lower lobe, obliteration of the right costo-phrenic angle, and an interlobar pleurisy. The following day her menses began. Her maximum temperature was 99.2° that day and she felt pretty well. There had been no flare up in any joints. She then continued practically afebrile for the next 7 weeks, during which time she had 1 uneventful menstrual period.

On February 1st, 1936, 3 days prior to the patient's next menstrual period, she complained of soreness of the muscles of her left leg. She was afebrile until the third day of this period when her temperature rose to 100.6°. She felt tired, and although she did not complain of chest pain, there was again evidence of fluid at the right base. The next day her temperature went to 101.0°, and her white blood count was 9,800. The following day she became afebrile and has remained so ever since. There have been 3 subsequent uneventful menstrual periods. With the hot weather she is making good improvement.

Although we have no control film of the patient's chest, there has been nothing in her history nor any clinical evidence during the first year that she was under our observation that would point to an old pleural, or bronchial, involvement. A focus of infection in the lung or pleura established but not detected at the time of the first episode, seems likely. The balance between resistance and infection was so delicate that the drain of menstruation repeatedly tipped the scales temporarily toward reactivation. A recent film shows a clear lung field, but there is no evidence of pleural thickening in the right base near the costo-phrenic angle. The process seems to have subsided for the time being, but may, of course, become active if resistance is lowered. These febrile episodes had an unfavorable effect on the general condition, but there was no evidence that they affected the joints directly.

SUMMARY AND CONCLUSION

Two cases of atrophic arthritis with intercurrent pulmonary infection are reported. As far as these observations go, pneumonic processes occurring in the course of atrophic arthritis do not differ from the intercurrent infections met with in other chronic debilitating diseases nor do they bear etiologic relationship to the progress of the disease.

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MALIGNANT MELANOMA; COURSE AND TREATMENT

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One who has seen these simple insignificant lesions followed by extensive metastases throughout the entire organisms, cannot forget them or fail to be suspicious of such a type of growth. We limit ourselves to the malignant melanomas, secondary to the deeply pigmented moles and nevi.

Melanomas spring from cells producing melanin; therefore they may be primary growths in localities wherein such cells are found. The common sites are the skin and the eye, though they are also found in the ovary, the brain, the rectum and the subungal region of the fin-

ger and toe nails. Cases in which primary tumors of this type are found in other organs must be accepted with reservation, since in all probability they may be metastatic manifestations of a primary tumor so insignificant or present such a long time that they may have been overlooked or forgotten. Two histories will illustrate:

A male, 40, at the National Military Home, complained of being ill at ease but had no definite symptoms nor was anything definite found on physical examination. A film of the chest showed in the right lung a **mossy shadow 1 cm. in diameter.** A recheck of the physical examination and history revealed a **small pigmented area** 1 mm. in diameter **in the right cheek.** Four weeks before this had been infected but as it had healed the patient had paid no attention to it. It had not changed in size for many years. Death due to general metastasis took place in 6 weeks and the same histological structure was found in the metastatic and in the primary tumors.

The 2nd patient (table II) had a **small mole removed** on the left leg 7 years before. She was admitted to the hospital because of abdominal symptoms under the care of another physician. A **tumor of the mesentery** was removed and on microscopical examination was found to be a non-pigmented melano-epithelioma. It was thought that this was a primary tumor until a careful inquiry into her history revealed that she had a pigmented mole removed 7 years earlier. No other metastases were found.

In obtaining the **history** of such a growth, the patients often volunteer the statement that the lesion has been present since birth as a small area of pigmentation or that the growth has sprung up in a birth-mark or angioma which has been present since birth. Viewed in this light such lesions may be considered developmental rests and fit in with the Cohnheim theory on the origin of malignancy. In other words, they harbor cells that are"sleepers", waiting only the spark to set them off on their lawless growth. Removal of quiescent moles may show microscopic evidence of malignancy and still there may be no clinical evidence of activity. Histologically, there has been great controversy regarding the origin of the cells making up melanomata. Some pathologists have contended that they are epithelial in origin, while others say they have their origin in the tactile mechanism of the nervous system.

The **theory** of the epithelial origin of melanomas is based on the fact that pigmented cells occur normally in the "stratum germinativum" of the epidermis. Apparently some of these tumors seem to spring from the basal cells of this layer. The work of Masson is suggestive of the neurogenic origin since he found 2 possible sources, the dendritic cells in the epidermis and the nevus cells of the derma. Furthermore, he has demonstrated that there is an abundance of neuritis in cellular nevi and in the duplications of Meissner's corpuscles. Therefore, he is of the opinion that nevi are neuromas involving the endings of peripheral nerves. On the other hand, Broders and Fletcher have advanced the suggestion that since the skin and the nervous system develop from the ectoderm, nevus cells may be neuro-epithelial in nature.

The common nevus is a flat, pigmented spot, but when the nevus cells take on growth it gradually becomes elevated. Local hypertrichosis and hyperplasia of the sebaceous glands are occasionally associated with melanotic nevi. Pigmentation of the skin is sometimes seen with a **neuro-fibroma** arising from the Schwann cells in a peripheral nevus. These tumors are usually elevated, pedunculated and multiple and represent the entity known as Von Recklinghausen's disease. When these undergo malignant change they are termed neuro-fibrosarcomata. The color of the nevus depends on the amount of melanin present in the epidermis and in the histiocytes of the derma. It varies from yellow and brown to a deep blue-black.

Malignant tumors arising from pigmented nevi are known as **melano-blastomas** or melano-epitheliomas. The old term of melano-sarcoma has been discarded since these growths spring from the ectoderm rather than the mesoderm. Histologically, melanomas are of two cell types, the polymorphous round cell and the spindle cell. Though both are very malignant, the former is the more so; the cells are immature and the degree of anaplasia usually points to a grade IV malignancy. They are noted for their power of rapid growth, deep infiltration and widespread metastasis. Indeed the metastasis may be so great as to

completely overshadow the insignificant primary lesion.

One is struck by the great variability in the **clinical course** of these patients. A great number of them give histories of having lesions since birth, while many date the pigmented area to a trivial injury such as a scratch. In the great majority of patients the pretreatment phase is 10 or more years—naturally one asks what is the relationship of trauma. This is an exceedingly important question especially from a medico-legal standpoint. Scratching and cutting, followed by infection, mild in nature but enough to open the protective wall, seem to set the ball rolling. There is a gradual increase in the size of the tumors with no tendency toward healing. Men while shaving have accidentally cut quiescent moles or a tinkering barber who delights in pulling out ingrown hairs has sometimes given the impetus to growth. Then again, patients may have small unrecognized lesions on the scalp which they have accidentally bruised in combing or brushing the hair, as was shown in one of the cases in this series (table III, case 10). Writing about the influence of trauma, Herver describes its effect in the colored races of the upper Nile. Malignant melanomata are supposedly rare in the negro, but in the colored races of the upper Nile he has seen 47 cases in a 5 year period—35 of these were on the lower extremities and 17 on the soles of the feet. The reason for this was that these people going bare-legged and bare-footed are subjected to repeated trauma from thorns. The American negro wears shoes and is not subject to those disturbances. Two of our cases (table II, case 17 and table III, case 6) gave histories of injuries to the heel and sole in nonpigmented areas from the nails in shoes. Though a single massive injury may provoke growth, the usual history is of chronic irritation from constant rubbing over a long period.

When once under way, the **disease is progressive.** The rapidity depends upon the method of spread. Growth may be local and remain so for months or years; even with metastases to the regional nodes the time for a final termination may be years; but too often the course may be fulminating, invading the blood stream directly with a massive, diffuse involvement of all the organs of the body. Direct extension through the blood stream with clinical manifestations of activity may occasionally be much delayed. A familiar example is seen in the eye, where there has been a cure of the tumor locally after enucleation still the patient dies of liver metastasis 10 to 25 years later. Undoubtedly the spread must have taken place prior to or at the time of the operation. Why there should be such a delay is an unanswered question. Generalization through the vascular system takes place in 1 of 3 ways:

Through the thoracic duct after the lymphatics are full; by direct extension into a vein in the proximity of the growth, and through the capillaries in the growth itself.

Handley, who has made an intensive study of these lesions, insists that **the mode of spread** is exactly the same as in carcinoma of the breast—lymphatic permeation. This particular type of growth lends itself admirably to direct study of gross specimens because of the pigmentation. He has demonstrated definitely that the primary spread is by lymphatic permeation. In his opinion vascular extension are phenomena seen late in the disease. However, there are exceptions to every rule, as is noted in table III, case 20, and in those patients with ocular melanomata coming back with extensive liver involvement with no apparent lymphatic manifestation.

One of the most remarkable cases illustrative of direct vascular extension is reported by Parkes-Weber. His patient was a pregnant mother who died of malignant melanoma. A living **child** was born and it died shortly afterward from **melanotic** metastasis to the liver. Here the extension was through the placenta, directly into the umbilical vein. Hart & Crawford report a patient who complained of a pigmented growth in the throat involving the tonsil. Four months before he had injured a mole on his right ankle. Wilbur and Hartman have recently published an article on delayed manifestation of metastatic growths from malignant melanomas, wherein they cite 10 cases in which the appearance of the secondary growth ranged from 5 to 13 years post-operatively. They reviewed the subject thoroughly and feel that metastatic cells find lodgment in distant locations and grow only when the natural resistance of the receptive organ has been lowered. Cohnheim said this occurred only "when physiologic metabolism of the tis-

sues is altered by age, atrophy and inflammation."

Why do some of the metastases continue to remain pigmented, while in others the pigmentation in the metastatic cell is lost, giving a non-pigmented secondary? Is it a reversion to the primary nerve cell? Such non-pigmented moles closely resemble neuro-sarcomata.

Diagnosis: Which moles are dangerous? Most individuals have one or more. Adair quoting Pack says that the average individual has 20 pigmented moles over the body; obviously not all of these are dangerous. Fortunately, practically all of them are the brown type and do not cause much disturbance. However, we do occasionally see patients in whom black moles grow from previously brown ones. **Clinically, the dangerous mole is jet black, smooth and glistening.** However, one must not overlook the deeply pigmented hairy mole or the angiomata in the adult, both of which may undergo malignant change. Where such a change begins in a nevus or hairy mole, it is impossible to determine its malignancy except by excision and microscopic examination. Adair has emphasized that these quiescent congenital lesions when excised, even though they are innocent in appearance, still are microscopically exceedingly malignant, awaiting only the necessary stimulus to start them off. In other words, the clinical history is of the greatest significance. A history of slight enlargement, increased vascularity and pigmentation is of extreme importance. With spontaneous ulceration and bleeding or when ulceration and bleeding follow a trivial injury malignancy is almost certain. Obviously, it is exceedingly dangerous to resort to simple biopsy as this may be followed by rapid metastasis; if microscopic evidence is necessary, then a wide excision of the primary growth is the only feasible and justifiable way of verifying the clinical diagnosis.

Treatment of these lesions has been notoriously unsatisfactory. Theoretically, surgical excision should be the treatment of choice but even under this regime the results are not "rosy." Inasmuch as the primary lesion is often so innocent in appearance, the majority of patients have had a variety of treatments, none effective. They vary from local applications of caustics, ointments and CO_2 snow to electrodesiccation and radiation either with x-rays or radium[4]; while in many others there apparently has been adequate surgery local recurrence or distant metastasis has taken place. The reason for such a variety of treatment is easily understood when the lesion is on an exposed surface of the body such as the face. These patients come to physicians for cosmetic reasons. They want their moles removed with no scarring. Naturally the simplest way is by the use of desiccation or by CO_2 snow. It requires a great deal of persuasion to convince a patient that a small, insignificant but suspicious lesion on the face, the eyelid or the lip should have a wide and possibly mutilating surgical operation. Consequently, patients try everything else first.

A review of the literature on **surgical treatment** is confusing; some men advocate it while others are not so sure of its efficacy. Thus Wood, a radiologist, says that surgery is the only effective treatment of melanotic tumors. The late Dr. Bloodgood advised surgical removal of benign moles but for the malignant melanoma he advised the use of the cautery. Handley also advises surgery, removing not only the primary tumor but also the neighboring nodes. Recently Adair has given his experiences at the Memorial Hospital; he is a strong advocate of wide surgical excision. Scott uses the hot loop cautery with excellent results.

Pigmented malignant melanomas are **resistant to radiation.** That these lesions spring from nerve structures may account for this. Stewart says that melanomas are uniformly highly radio-resistant with only about 2% having some degree of sensitivity. However, widespread metastasis to the skin and subcutaneous tissues may at times be radio-sensitive. Despite this fact, radiologists have been called upon to treat these lesions largely because of the poor surgical results and because of the recurrent and metastatic lesions that have been referred to them. Wood, Coley and Houget consider the use of x-ray and radium as primary curative agents harmful and contraindicated, while Arzts, Fuhs and Werner advise surgery followed by prophylactic radiation. Pfahler rarely uses radiation as a primary method but depends on electro-coagulation. Nevertheless, patients with metastasis to the regional nodes have been treated by McEwen, Holfelder, Evans and Leucutia with success.

Evans and Leucutia stress that the radiation to the primary lesion must be caustic in nature and must produce local necrosis. On the other hand, where the lesion is large and it is impossible to give a thorough dose to the deeper layers, they give preoperative radiation followed by radical excision. Adair speaking of the therapy, mentions that only 2.5% of their cases responded to radiation. In his group there were 9, in whom the complete therapy was radiation, who survived the 5 year period, though at present only 3 of these are free from the disease. At Radium Hemmet in Stockholm combined electro-surgical and radio-therapeutic technique is in use. Massive doses of radium are given preoperatively after which the primary lesion is either destroyed by electro-coagulation or removed by electro-surgical excision.

Electro-desiccation is a favorite method of attack by dermatologists. Most writers decry the method since it is too conservative and is thus harmful in its results, as it leads to local recurrence and widespread metastasis. Since the nevus cells are frequently deep in the derma and not well localized, they are not reached; consequently recurrence is common. Electro-coagulation has also been used by many men but the method has been condemned by Amadon and Adair. They contend that one cannot tell the extent of the lesion and for that reason its use, like electro-desiccation, is followed by local recurrence. Pfahler, on the other hand, uses it and recommends it, but insists that it must be done properly. If done improperly it is like inadequate surgery. Amadon feels that dissemination is due to the dilation of the lymphatics by heat and the generation of tissue steam which forces plugs of cells into the circulation. Theoretically this is possible, but if it were so, how about the thousands of cases of various epitheliomata that are treated in a like manner with no recurrence or metastasis. Obviously, recurrence is due to the failure to destroy the involved skin, fascia and other deeper structures. Bloodgood advised cautery excisions, while Percy has long been an advocate of its efficacy.

Other methods of treatment have been used also, namely, **Coley's toxins** and **colloidal lead.** In Adair's experience the use of toxins has

TABLE I. RESULTS OF TREATMENT OF MALIGNANT MELANOMA

AUTHOR	WHEN REPORTED	NUMBER OF CASES	METHOD OF TREATMENT	NUMBER OF CURES
Broders & McCarthy	1916	70	surgery	1—5 years
				3—4 to 8 years
Coley & Houget	1916	95 (81 personal) (14 from literature)	surgery, radiation, toxins	8—5 years
Bloodgood	1922	200	surgery (cold knife and cautery)	1—5 years
	30 years experience			(a) 18 followed—7 free from melanoma at 2.5 years
		(a) 36—no nodes		(b) 29 followed—1 free from disease at 2.5 years
Dawson	1925		surgery	
			X-ray	(a) 3—5 years 12.5%—no evidence of disease
		(b) 31—with nodes		(b) 3—4 to 4.5 years
		24—in all stages of the disease		(c) 18—dead from metastasis
Evans & Leucutia	1931			(a) 32—3 years, 45.1% (4 treated by electric surgery
Scharnagel	1933	(a) 70 followed 3 years	electro-surgery and radiation	(b) 19—years, 37.7% and all are well)
		(b) 49 followed 5 years	(tele-radium)	11—5 years, 37.9%
Scott	1934	39	cautery surgery	(a) 23—5 years 33%
Adair	1935	(a) 70 primary operable	surgery and radiation	(b) 15—5 years. 10%—8 died later of melanoma
Soiland, Costolow & Meland	1936	(b) 55 recurrent operable	surgery and radiation	(c) 9—5 years. 2.5%—3 died later of melanoma
			radiation alone	3 have recurrence now—3 free from recurrence
		(c) ?		(a) 9—5 years, 33%—4 died later of melanoma
		(a) 27 primary	electro-surgery and radiation	1 is living with metastasis—4 free from disease
		(b) 23 recurrent	electro surgery and radiation	(b)3—5 years, 13%

been disappointing; no patient has survived 5 years following its use. Brown reports a case from the Mayo Clinic in which there were large metastatic nodes in the groin that failed to respond to irradiation, in which the use of colloidal lead phosphate was followed by complete disappearance of all evidence of the disease with a survival of 4 years and 10 months at the time the report was made. We have used lead in 2 cases, both failures; the disease was well advanced in both.

What are the results of surgical and radiological treatment?

During the last 10 years our group has seen **250 patients with pigmented lesions;** of these 50 have been classed as belonging to the group of malignant melanomas. The others have been benign moles and pigmented keratoses, lesions that are ordinarily not particularly dangerous. In our work we have used electro-coagulation, electro-surgical excision and radiation therapy. Radiation therapy alone at times has been followed by complete disappearance of the primary tumor but this does not mean that the patient has recovered. This form of treatment has been used mostly as a palliative method in recurrent cases. We have seen enlarged nodes completely disappear and have then seen the patient die of metastases to the liver. Therefore, we feel that it has a definite beneficial effect on some tumors by controlling its growth, in this way prolonging life. Needless to say, x-ray therapy has a marked analgesic effect in many individuals suffering pain. Furthermore, despite the fact that melanomata are not as a rule sensitive to radiation, one never knows which patient will respond and which will not until a therapeutic test is given. Though surgery gives the greatest 5 year survivals, there is enough evidence at hand to warrant the use of x-ray and radium as aids preoperatively, and postoperatively in the operable group, but their greatest use is as palliative agents in recurrences and distant metastases. The worst thing one can do to these poor victims is to tell them nothing can be done. A state of defeatism supervenes with loss of faith in the profession on the part of the patient and his kin. The accompanying tables give a brief resume of the history and clinical course of our cases. Table II represents the primary group while table III is the recurrent or metastatic group.

Prognosis: Despite the apparently favorable results of surgery, the fact remains that a great number of patients surviving the 5 year period succumb to the disease. Wilbur and Hartman reporting on the delayed manifestations of melanomata emphasize this point as does the fact that practically all patients with ocular melanomata die of metastasis to the liver if they live long enough. The cells of melanomata are persistant and may remain tucked away in some safe place for years until the proper time comes and growth ensues with fatal outcome. When once ulceration and bleeding of the primary lesion has taken place, one may be quite sure that dissemination has already taken place. A 5 year survival of freedom from clinical manifastations of the disease means little as far as eradication is concerned. In our series of 9 who passed the 5 year period, 4 later died of melanoma and 1 is living with metastases.

What then is the best treatment in our opinion? This must be answered by reference to specific conditions as they arise.

In the first place, from a prophylactic standpoint it is perfectly obvious that one cannot destroy every mole that is seen. To one lesion that becomes malignant there are thousands that remain benign. Therefore one may be safe in saying that only those **pigmented lesions** found in locations that they may be **subject to irritation or trauma** need be taken care of prophylactically—such as are on the scalp subject to bruising from combing and brushing the hair, on the forehead from rubbing by a tight hat band, on the back from irritation of suspenders, on the leg from a tight garter or on the foot from a rubbing shoe or a nail. These should be cared for before activity takes place. When the lesion is already active, no matter where located, the primary tumor should be removed widely by electro-surgery, combined with prophylactic radiation. You will note that we say electro-surgery. While there is no direct evidence that the use of the cold knife is inferior to the endotherm or the cautery loop if excision is done properly to include a wide margin of skin, fascia and muscle if need be, a perusal of the literature and our own experience leads us to recommend electro-surgery. Even though the ultimate outcome as far as complete recovery is no differ-

TABLE II. PRIMARY MALIGNANT MELANOMA

Case	Age—Sex	Site—Type	PRIMARY GROWTH Size	Duration Before Treatment	Previous Treatment	Pathology	Findings	Present Treatment	Duration of of life after Treatment	Outcome
1.W.	Not stated	Right Leg Mole	Apple	10 years Growing,gradually	Ointments and caustics	No record	Pigmented, ulcerated tumor right leg. Secondary anemia. Nodes left groin.	Palliative x-ray treatment	5.5 years	Dead. General metastasis
2.P.	40 F.	Sole right foot Angioma	Not stated	2 years	None	Melano-epith.	Angioma	Radium packs (pre-op.) Cau.ery excision	1½ years	Dead. General metastasis
3.H.	Not stated F.	Back Mole	Small	Many years Irritated by corset	None	No record	Mole—Black	X-ray therapy to mole. X-ray therapy to metastatic nodes neck.	Followed 4 years, then metastasis to neck	Local lesion healed. Lost track of after 4 years. Undoubtedly died.
4.H.	40 F.	Left cheek Mole	Not stated	1 year	Cauterized with acid	No record	Ulcerating mole with infiltrating edges. Nodes left axilla.	X-ray therapy	2 years	Lost track after 2 years.
5.B.	Not stated M.	Right eye		6 months. Loss of sight	Removal of eye	Melano-epith.	Recently removed right eye.	Radium packed into socket	Lost track of	
6.B.	45 F.	Right temple Mole	5x7 cm.	Many years. 6 months ago began to grow rapidly	Local applications	No record	Ulcerating mass 5x7 right temple Bleeds easily. Nodes right neck.	X-ray therapy to lesion and nodes. Electro-coagulation	4 years	Dead. General metastasis. Local lesion healed
7.B.	16 M.	Right cheek Mole	1.5x1 cm.	6 years. Growing gradually	None	Not stated	Mole 1.5x1 cm., deeply pigmented. Marked enlargement of 4 submental lymph nodes.	Radium to primary lesion. X-ray therapy to nodes.	Followed 7 years	Primary lesion healed and nodes disappeared. Well at present.
8.Mc.	Not stated F.	Instep left foot Mole	3.5x4 cm.	Many years	Local applications	Not stated	Ulcerating, pigmentel tumor 3.5x4 cm.	X-ray therapy and radium. Electro-coagulation	Followed 3 years.	Local area healed. Lost track of.
9.C.	Not stated M.	Right temple Mole	1x1.5 cm.	1 year	Not stated	Not stated	Ulcerated pigmented tumor 3.5x4 cm.	Radium		Local lesion healed. Lost track of.
10.L.	44 M.	Left chest Birth-mark	Lima bean	Birth. Pimple appeared in lesion 9 months ago. It began growing.	Not stated		Ulcerated, bleeding pigmented tumor 2 cm. diam. Node in left axilla 1 cm. diam.	Radium and electro-coagulation to local lesion. X-ray therapy to nodes in axilla.	8 months	Dead. General metastasis. Local lesion healed.
11.M.	24 M.	Left back leg	2 cm. diam.	Birth. Doubled in size past year	None	Melano-epith. Nodes non pigmented	Pigmented tumor 1x1x.5 cm.	Radium and excision with radio knife.	8 years	Dead. General metastasis. Local lesion healed. 3 yrs. ago nodes appeared in groin; removed surgically. 1.5 yrs. ago mass in abdomen appeared.
12.S.	27 F.	Right instep foot Mole	1 cm. diam.	Many years Struck it one week ago. Bleeds now. Growing	Local Applications	Not stated	Pigmented tumor 1x1x.5 cm. ulcerated and bleeding.	X-ray therapy. Wide excision radio-knife	Followed 8 years	Living and well.
13.V.	40 F.	Right eye	Not stated	Failing vision	Enucleation 2 weeks ago	Melano-sarcoma	Healing operative wound right orbit.	X-ray therapy to socket	5.5 years	Dead. General metastasis. Local lesion healed.

						Sarcoma	Would right orbit.	to socket		Local lesion healed.
14.J.	77 M.	Right temple Mole	4x4 cm.	20 years. 4 months ago began to grow.	Local treatments	Not stated	Pigmented, ulcerated lesion 4x4 cm.	Radium. Electro-coagulation	Unknown	Local lesion healed. Lost track of after 6 months.
75.H.	51 F.	Back left	2.5 cm.	Since childhood	Local treatments	Melano-epith.	Pigmented mole 2.5 cm. diam., ulcerated, bleeding and infected.	Electro-coagulation. Radium to open wound.	7 years	Dead as a result of tumor in the mesentery found to be melano-epithelioma, non-pigmented. No other evidence of metastasis. Local lesion healed.
17.B.	45 M.	Conjunctiva Left eye		1 year. Pigmented tumor appeared on conjunctiva.	None	Melano-epith.	Small, pigmented area on conjunctiva. left eye.	Excision of tumor from conjunctiva.	8 years	Still living but in poor health. Suffering from anemia probably due to metastasis.
16.S.	62 F.	Sole of foot Mole	2 cm. diam.	2 years. Followed injury from nail in shoe.	Excision	Melano-epith.	Ulcerating, pigmented tumor, 2 cm. diam. Hard, fixed, round mass in groin.	Radium and electro-coagulation to local area. X-ray therapy to nodes.	4 years	Dead. General metastasis. Local lesion healed.
18.S	70 F.	Right side face Mole	.5 cm.	Not stated	Desiccation	Melano-epith.	Ulcerated, pigmented tumor. .5 cm. at angle of nose.	Excision radium	7 years	Living and well. Local lesion entirely healed.
19.A.	19 M.	Upper and lower lid Right eye Mole	5 cm. diam.	Many years. Growing rapidly now	None	Melano-epith.	Pigmented tumor 5 cm. diam. .5 cm. thick.	Electro-coagulation. Radium	Followed 6 years	Local lesion healed. Patient well.
20.O	50 M.	Right leg Mole	3 cm.	Birth. Growing now	None	Not stated	Pigmented tumor 3 cm. wide.	Electro-coagulation	6 years	Local lesion healed. Patient well.
21.C.	59 M.	Anus Pigmented polyp	2x3 cm.	1 year Pain the last 4 months	Polyp removed	Melano-epith.	Firm, pigmented, cystic area 2x3 cm. right side anus.	None	Refused treatment	Unknown.
22.M.	84 F.	Right breast Mole	5 cm. diam.	.5 years. Growing rapidly	Ointments	Not stated	Multiple, small, pigmented tumor right breast. Multiple moles over body.	Radium Electro-coagulation	Followed 1 year	Not known. Local lesion healed.
23.S.	67 M.	Right shoulder Birth-mark	4x6 cm.	Birth. 3 months ago began to ulcerate and pain.	Ointments	Melano-epith.	Birth-mark 4x6 cm. ulcerating. Infiltration with pigmented nodules in an area 10 cm. diam. Enlarged nodes right axilla.	Radium pack. Wide excision with radio knife. Dissection of right axilla with removal of nodes. X-ray therapy.	1 year	Died metastasis to chest. Local lesion and axilla. o.k.
24.J.	30	Right neck side Mole	2 cm.	Birth. Growing gradually	None	Melano-epith.	Tumor 2 cm. wide, black.	Excision radio knife.	2 years	Living and well. Healed at present.
25.T.	34 F.	Right face Mole		Years	None	Melano-epith.	Mole 1x.5 cm.	Electro-coagulation	1 year	Healed. Living and well at present.
26.C.	52 M.	Right eye Choroid		Blind 1 year	Refused enucleation Abram's treatments.		Blind right eye. Multiple bluish, hard nodules subcutaneous over face, scalp and trunk.	None	Unknown	Lost track of.
27.T	60 M.	Eye		3 months	Enucleation of eye.	Melano-epith.	Blindness 3 months.	None	4 years	Still living. No local evidence of disease.

TABLE III. RECURRENT MALIGNANT MELANOMA

Case	Age—Sex	PRIMARY GROWTH Site—Type	Size	Duration Before Treatment	Previous Treatment	Pathology	Findings	Present Treatment	Duration of life after Treatment	Outcome
1.B.	50 M.	Head Mole	Not stated	10 years	Excised 3 times	Melano-epith.	Local recurrence in scalp. Multiple nodules over head.	X-ray radium to recurrence.	3.5 years	Dead 13.5 years after first appearance.
2.W.	67 F.	Right wrist Mole	Blackberry	2 years	Excision 1 yr. ago and 6 months ago	Melano-epith.	Mutiple nodules over body.	X-ray	?	Dead. Time not known.
3.H.	40 F.	Right ear Mole	Pea	Birth.	Excision 2 yrs ago. Removal of ear 1 year ago. Local removal recently of recurrence.	Melano-epith.	Healed recent scar. Metastasis to node right side of neck.	X-ray nodes in neck.	3 years	Dead. General metastasis Paraplegia.
4.M.	38 M.	Right foot Mole	.5 cm.	Many years Few months ago began to grow	Excision 2 years ago.	Melano-epith.	Recurrence in ulcer on foot, bluish in color. Nodes right groin.	X-ray radium.		Lost track of.
5.H.	39 F.	Left breast Birth-mark	Blackberry	Birth	Electro-desiccation.	Melano-epith.	Local recurrence 2x4 cm.	Radium.		Well.
6.F.	26 F.	Right heel foot Mole	1 cm.	Growing slowly for 4 years. Due to injury from nail in shoe.	Excision 2 years ago.	Melano-epith.	Ulcer 3 cm. diam. with recurrence. Nodes right groin.	Radium locally & elec. coag. Removal of nodes in groin. X-ray to groin.	5 years	Primary site healed. Died metastasis to lungs.
7.G.	9 mos. F.	Below right eye Birth-mark	3 cm.	1 month after birth	Excision 4 months ago	Melano-epith.	Healed with scar with recurrence 3x3 cm.		10 years	Well, considerable local telangictasia.
8.V.	Not stated M.	Left shoulder Mole	Not stated		Excision 1 year and 2 weeks ago	Melano-epith.	Open wound.	X-ray to wound.		Local healing. Outcome unknown.
9.C.	42 F.	Left eyebrow Birth-mark	Not stated	Birth. Grew rapidly after picking with pin.	Excision 4 mos. ago. Removal of nodes in neck with metas. 3 mos. ago and x-ray.	Melano-epith.	Ulcerated recurrent growth angle left eye. Multiple bluish subcutaneous nodules over face, head and neck.	Radium over ulcerated area.	5 months	Dead. General metastasis.
10.W.	25 M.	Scalp Wart	Pea	6 weeks. Injured it while combing hair. Some bleeding.	Excision 2 mos. ago. Radium locally. Radon seeds in nodes of neck.	Melano-epith.	Massive. ulcerating recurrence over entire head. Massive metastasis to nodes of neck. Seconlary anemia.	X-ray radium colloidal lead phosphate	5 months	Dead. General metastasis.
11.H.	75 F.	Sacrum Mole	Small nut	Not stated	Cauterization of ulcerated mole 4 yrs. ago followed by local recurrences; 3 surgical excisions in past 3 yrs. X-ray therapy.	Melano-epith. Non-pigmented	Ulcerated, cauliflower mass 5 cm. in diam. over sacrum. Subcutaneons mass 8 cm. diam. left leg. above knee. Metastasis to lungs. Neurofibromatosis.	Radium pack colloidal lead phosphate.	4 years or more.	Dead. General metastasis. Time unknown.
12.G.	52 F.	Right ovary	Not stated	3 months. 3 months ago when operated for acute appendicitis. Tumor of ovary found.	None	Melano-epith.	Metastasis to nodes left side of neck. Edema of the left leg.	Palliative x-ray therapy.	Unknown	Dead. Exact time unknown.

13.B.	62 M.	Back Mole	Quarter	?	Electro-desiccation of mole 1 year before.	Melano-epith.	Healed scar. Nodules subcutaneous on back lateral to the scar.	Radium x-ray excision endotherm.		Living. Has small nodules removed from time to time. These are of non-pimented variety.
14.S.	35 F.	Right chest Mole	Not stated	Not stated	Excision of mole 3 yrs. ago. Now has pain in left lower abdomen for 6 mons.	Melano-epith.	Large, tender mass filling left lower abdmen. Metastasis to femur and ilium shown by x-ray.	X-ray therapy.	4 yrs. relief from pain by x-ray therapy.	Dead. General metastasis.
15.W.	61 M.	Right axilla Mole	?	Not stated	Excision of tumor right axilla 2 yrs. ago. Recurrence locally. X-ray and radium to recurrence by Dr. Wasson of Denver.	Melano-epith.	No evidence of disease.	Not treated by us—examined only.	7 years	Living and well at present.
16.S.	26 F.	Scalp Sebaceous cyst	?	10 years	Excision and radium by Dr. Heublein of Hartford, Conn.	Melano-epith.	Wound healed.	Observation only —not treated by us.	?	Local lesion healed. Lost track of.
17.D.	30 F.	Back Mole	?	Birth. Growing gradually	Excision with cautery.	Melano-epith.	Wound open and sloughing.	X-ray therapy.	?	Lost track of.
18.W.	49 F.	Back Mole	1 cm.	2 years. Growing gradually	Excision followed by recurrence in a few weeks.	Melano-epith.		Wide excision radio-knife. Radium.	2 years	Local healing. Dead. Abdominal metastasis.
19.T.	60 F.	Left ear Mole	1 cm. 2 cm.	Not stated	Excision 6 months ago and x-ray.	operated epith.	Bluish black mass lobe of left ear, 4 cm. wide. Nodes neck.	Removal of ear and nodes with radio-knife. Radium. interstitiality	1 year	Local lesion healed. Dead. Chest metastasis.
20.D.	50 M.	Left temple Mole	1 cm.	Not stated		Melano-epith.	Small, local, bluish recurrence. Nodules anterior to ear.	Radium x-ray.	2 years	Still living in poor health. Abdominal metastasis.
21.K.	44 F.	Left temple Mole	1 cm.	Not stated	Excision 4 yrs. ago. 3 years ago nodes appeared on left side of neck.	Melano-epith.	Massive, nodular metastasis to glands of neck left side from ear to clavicle.	X-ray to nodes.	Not known	Patient lost track of.
22.P.	64 M.	Lumbar region Mole	Small	Not stated	Excision 2 yrs. ago. Excision recurrence 1 yr. ago. Excision recurrences 6 months ago.	Melano-epith.	Tumor 4x4 cm. at edge of scar on back. 2nd tumor 6x8 cm. before excision.	X-ray therapy.	3 years	Still living but has internal metastasis. The tumors on back disappeared after therapy. Then had a metastasis in sternum which disappeared after therapy.
23.J.	64 M.	Left fore-arm Mole		Not stated		Not examined	Tumor left axilla 8x14x 5 cm.	X-ray therapy.	About 1 year	Dead. Developed metastasis into chest.

ent, at least, there is less local recurrence when electro-surgery is used. If the lesion is on the face, especially around the eye and the lids (table II, case 19), where wide excision is refused and where it will result in marked deformity, it is justifiable to use electro-coagulation accompanied by pre- and post-operative radiation. If the lesion is small, caustic radiation as advocated by Evans and Leucutia may be used. This means a massive dose of x-rays in one or two sittings, so as to produce total destruction of all cells in the treated area. Small repeated doses are only temporizing and will lead to disaster. Where recurrence is present following surgery and where there are metastases precluding a further surgical attack, radiation should be used alone or it may be combined with colloidal lead.

Conclusions: Malignant melanomas ordinarily arise in simple pigmented lesions. They may occur at any age and are insidious in their course, but once started they are progressive. The success of treatment, when based on 5 year survival statistics, is dependent on the time of recognition, however the ultimate outcome is problematic no matter how radical one is.

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SURGICAL TREATMENT OF ARTHRITIC JOINTS

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On first developing rheumatic symptoms one can not realize that eventually he may have severe incapacitating deformity requiring crutches or wheel chair for locomotion. Application of appropriate orthopedic measures are as important as eradication of causes and other medical measures of relief; but, unfortunately, the importance of the treatment of deformity is often not realized until the victim has reached the derelict stage in which mechanical improvement is of the least benefit.

The surgical treatment of arthritic joints is so broad in scope that I stress here only some of the more pertinent points, hoping thereby to stimulate interest in treatment of the most economically disastrous disease of human beings. The surgical measures differ widely according to whether the disease is active and progressive or is inactive with permanent articular alterations.

Active progressive stage: Histological alterations in fibrous tissue cells, pouring out coagulable lymph; from which plastic repair result in inelastic fibrotic adhesions; and irreparable erosion of structural parts. Treatment in the active stage must be directed toward the relief of pain and the prevention of contractures. Reflex muscular spasm from painful joint irritation can be relieved best by support, immobilization and traction.

Splinting of the involved structures if thoughtfully applied and managed can give relief and preserve the most serviceable position of the joint, but such measures without consideration of indications may torture an already exhausted nervous system, or contribute to further deformity or disability. Plaster of Paris immobilization of an inflamed joint often provides remarkable relief of pain through relaxation of muscle spasm and diminution of intra-articular tension; but if applied without fixation of the joints related by muscle attach-

ments above and below the affected joint, pain may be aggravated because of added strain from the posture; or associated joints may develop deformity.

Immobilization of a painful lumbar spine must fix one or both hips. A splint to the knee should also fix the hip and the foot. Traction by weights and pulleys is an extremely useful measure in the relief of tension and contraction of inflamed joints but the apparatus must be judiciously applied, managed and removed. The Kirschner wire is now being employed successfully in relieving the contractures of arthritis.

Aspiration or drainage of acutely distended joints is often necessary, but a great deal of harm may be done by injudicious penetration of a joint. It is better to aspirate than to permit synovial distention over a long period even though reoccurrence of fluid is likely. In acute infections drainage of a knee joint is best accomplished by incisions lateral to the patella but in some cases posterior drainage is also necessary. Willems' treatment of active motion has not proved practicable or advisable in my practice except in one or two instances of penetrating wounds such as of gunshot which gave rise to the advocation of the method. I believe in thorough immobilization and traction of an acutely inflamed joint whether it is draining or not.

In **acute gonorrheal joints** I find surgery and splinting often of great importance but fever therapy has greatly diminished the difficulties in this type of acute arthritis. Frequent aspiration, however, is of great assistance in the relief of pain. I never inject chemicals into the joints because they cannot reach the source of the infection and may add much to the irritation and may add much to the irritation of an already overburdened synovial membrane.

A type of septic arthritis occurs especially **in the hip joint** which I think ought to be more often drained surgically but which is seldom recognized as septic and therefore is treated non-surgically until total absorption of the head and neck occurs. The diagnosis is often sciatica. It is usually a sequel to pelvic infection, with acute severe pain and stiffness in the hip which slowly subsides after 3 to 4 weeks without spontaneous drainage. The x-ray does not show definite change for 6 to 10 weeks or until the head and neck become disintegrated and dissolved, leaving only the trochanter and a portion of the femoral neck. I believe early recognition and drainage of such hips would prevent extreme destruction.

Permanent arthritic alterations: When inflammation has ceased, a much different treatment may be used than in the acute state. Residual involvement of the joint may be in at least three areas:

The synovial membrane and accessories of the joint; the cartilage and bone of the articulation; and the periarticular structures of the joint such as tendons, ligaments, fascia and skin.

With deformity it is necessary to consider if the internal structures are sufficiently preserved to expect return of function with treatment or if the joint structures are permanently damaged, and whether to leave the ankylosis and improve the position or to reconstruct the articulation for motion.

Restoration of function of a joint stiffened but not destroyed involves splinting, traction, manipulation and sometimes open surgery. There are about as many forms of apparatus for relief of deformity in stiffened joints as there are types of stiffened joints. Various methods of applying corrective plaster casts, turnbuckles, rubber bands and a great variety of cleverly designed splints, pulleys and weights have been recommended. It is chiefly a matter of applying common sense and ingenuity together with mechanical devices that offer the most effective solution to the problem at hand. This form of treatment does not bear well with routine. An additional admonition is: Be patient; do not injure the joint; and give the tissues their full privilege of responding to the force applied by the external corrective apparatus.

Manipulation of stiffened joints is successful if intelligently done. Attempts to secure motion in a stiffened joint by forcible manipulation is likely to prove disastrous. The treatment may be successful with anesthetic in some cases and without in others.

Adhesions form in a manner which should be well understood. It is because of a lack of sufficient devotion of physicians to this subject, I believe, that gives the bone setting charlatan his opportunity to exploit the public

by diagnosing subluxations and maladjustments. Details cannot be given here but there is ample information in the literature explaining all the tricks and methods of snapping adhesions and manipulating joints for minor painful adhesions.

With **ankylosis** in which a great amount of force is necessary to produce motion, mobilization treatment must be based upon a thorough understanding of the following: The etiological factor, the stage of progress, worthiness of outcome, and the type of ankylosis.

Tuberculous joints, of course, should not be manipulated, and no joint should receive forceful motion while there is active inflammation. Joints of multiple atrophic arthritis often improve under forcible movement—a treacherous procedure.

Some of the joints more commonly involved in **fibrous ankylosis** which respond favorably to manipulation are as follows:

1—The shoulder, for limitation of abduction and for bursitis or tendon adhesions, such as are found in periarthritis and traumatic arthritis; 2—the ankle joint for heel cord contraction and minor adhesions resulting from sprain or fractures; 3—the wrist, hand and fingers in stiffness following wrist joint injury or in ankylosis following specific arthritis; 4—the foot, where adhesions have resulted from trauma or strained arches, and in gonorrheal arthritis; (the foot responds exceptionally well to forcible manipulation; in metatarsalgia a Canadian doctor has capitalized upon the spectacular relief afforded by clever manipulation of the tarsal, metatarsal and phalangeal joints; he is performing one of the oldest form of bonesetters tricks which an ethical physician can perform if he wishes); 5—the elbow does not respond well to stretching; splinting and traction are preferable in most cases; 6—the hip may be manipulated to correct adduction and rotation deformity but where stiffness is secondary to trauma, this joint may be entrusted to functional activity; and 7—the spine responds favorably to forcible stretching in many instances, and discussion of such procedure would be a lengthy one; forcible manipulation in well selected cases of sciatica, sacro-iliac, iliolumbar and lumbosacral cases of fibrositis followed by immobilization in plaster or in traction for 6 weeks often renders positive relief to a chronic back.

Open surgery is employed successfully in restoring joint function in such cases as loose bodies and cartilages, exostoses, benign tumors, and fibrosed synovia. The knee joint is especially favorable to surgical removal of pathologic tissue. The hip joint, elbow and shoulder are less commonly opened for removal of tissue obstructing motion. Loose bodies resulting from osteochondritis dessicans, loose cartilages, bursae, villous arthritis, benign tumors, exostoses and fibrotic synovia or hypertrophic osteophytes often can be removed with spectacular success.

Synovectomy has of late years become popular. The procedure dates back to Volkmann in 1877 but has been advanced by Swett[1], Ellis Jones[2] and others since 1922. A thorough removal of the synovial membrane, particularly in knee joints, may be done in many cases of atrophic and hypertrophic arthritis, even in some that still have a certain amount of inflammatory activity. I have used the radio knife for this dissection and find it reduces the tendency to hemorrhage and it seems that earlier use of the joint results.

Plastic measures may be employed on the extra articular structures, and in contractures of the capsule, tendons, fascia and skin. Posterior capsulotomy of the knee as practiced by Wilson is particularly useful.

Another procedure is that of Ober's method of **sectioning the fascia lata** in certain forms of chronic sciatica to lessen the tension. The fascia lata is freed along the iliac crest and stretched; the pelvis and legs are immobilized in plaster. In properly selected cases the results are remarkable.

In **all joints where the articular surfaces are beyond repair** choice must be made between osteotomy, arthrodesis and arthroplasty. The joint may be fused by arthrodesis where a painful joint exists in which arthroplasty is not favored. The hip, knee and spine are frequently benefited thereby. Monarticular affections such as osteoarthritis, progressive polyarthritis and "traumitis" often destroy articulaitons so that bony fusion with firm security in weight bearing as well as relief of pain is preferable to an arthroplasty where the joint may not be stable and may be painful.

Surgical mobilization of ankylosed joints by **arthoplasty** is indicated particularly in the knee, the hip and the elbow and occasionally

the jaw where there is multiple ankylosis such as two stiff hips or knees, or where an acute pyogenic infections or trauma have occurred and the indications are such that restoration of movement will be a distinct advantage.

The **arthritis deformans** type of case does not do well in respect to motion following arthroplasty but in severe cases where both legs or arms are stiffened, even partial motion is desirable and arthroplasty is indicated. There are many contraindications and careful study should be made before undertaking to mobilize a joint by arthroplasty. Tuberculosis, osteomyelitis, severe osteoporosis, epiphyseal growth and social status of the patient are factors which contraindicate arthroplasty.

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PREVENTION OF CHRONIC SINUSITIS

REA E. ASHLEY, M. D.
San Francisco

(Read before the 46th Annual Session of the Arizona State Medical Association, April 23-25, 1936).

Too much attention has been paid to the treatment of chronic sinusitis, and far too little to its prevention. The literature has been full of new, and many times bizarre, operations and methods of curing this disease. Complete removal of all ethmoid cells and infected membrane of the various sinuses, is frequently desirable and attempted, but rarely accomplished; and if partially accomplished, at what a cost to the normal structures of the nose!

We have, perhaps, been so energetic in our efforts to kill the germ by completely destroying the tissue upon which it thrives, that we have lost sight of the etiologic factors which break down the natural defense mechanism and allow its initial entrance.

Only now are we beginning to realize that the majority of chronic sinus infections can be prevented by proper treatment of their etiologic factors.

We are beginning to have a conception that deficient and unbalanced diet, metabolic and endocrine disorders, allergy, failure to establish early and adequate aeration and drainage during attacks of the common cold, play an important part in the development of this disease.

The foundation, and frequently the entire structure, of chronic sinus disease is built in infancy and childhood, and preventive treatment must therefore begin during the early years of life. Education of the parents, and greater care in the treatment of these seemingly unimportant disorders will prevent much distress and suffering in later life.

In the main the predisposing causes of chronic sinusitis can be placed in 4 general groups: Physiological effects, malformation of the structural framework of the nose, allergic tendencies, and infections.

By **physiological effects** we refer to unbalanced diet, glandular distrophies, metabolic fluctuations, excessive use of alcohol and tobacco, swimming and diving, bad ventilation, lack of sunshine, and generally poor living conditions. The study of these various conditions comes in the field of general medicine, and their correction should be under the direction of the clinician. We, as specialists, must, however, be constantly on the alert and able to recognize certain of these deficiencies in order that we may refer them for general medical treatment.

Under **malformations** must be included hypertrophied tonsils and adenoids, deviated and malformed septa, enlarged turbinates, traumatic abnormalities, obstructing tumors and atresias. Were it possible to correct all nasal obstructions during early life, or even between the ages of 10 and 20, there would be few sinus operations necessary in later life, except, of course, those due to abscessed teeth or superimposed on allergic foundations. Surgical preventive measures must include the removal of obstructing and infected adenoids and tonsils, correction of septal spurs and deviations, removal of polypi, polypoid degenerations and hypertrophies which interfere with free ventilation and free drainage, and removal of abscessed teeth, foreign bodies and neoplasms.

Allergy is an important etiologic factor in chronic sinusitis. There is a definite reason for this seemingly great increase of allergic children, namely, the substitution of various formulae all using the cow, the goat, or the donkey instead of the mother for the source of food supply in infancy. Any child who re-

ceives from 6 to 8 overwhelming doses of foreign animal protein each 24 hours over a period of months or years, is likely to become sensitive to that protein, and then his lowered threshold is apt to render him more susceptible to other protein sensitizations.

There is little doubt, however, that allergy and sinus disease frequently **do** go hand in hand, and whenever this condition does exist any treatment of one without treating the other, will surely fail; and we must be particularly on guard against too active surgical treatment without the counsel of the allergist.

Infections are the main objective of this paper. Inflammation of the sinuses are practically all of bacterial origin; irritation caused by trauma without superimposed infection is transient.

In a series of 177 cases of sinus infections, the organisms most commonly found by Babcock were the pneumococcus, streptococcus, and the staphylococcus. These are usually secondary invaders and follow an exanthemata, influenza, or the common cold. The local treatment, given in detail later, is the same for all three.

It is with hesitation that I mention the common cold; it is, however, the most frequently given etiologic factor in chronic sinusitis and must, therefore, necessarily be included in discussion of this subject.

Every acute head infection is potentially a chronic sinus infection, and yet it is surprising how unconcerned many persons are regarding a persistent purulent nasal discharge—a little "catarrh" they call it—no more than the usual amount inevitably incident to the "local climate," which "climate" may be from sea level to the highest mountain. We physicians have not sufficiently warned our patients of the evil consequences which may follow such carelessness, nor have we sufficiently emphasized contagion. It is common to find several members of one family showing, not only the same manifestations, but even the same organism on culture. The handkerchief and pocket are two of the greatest offenders in disseminating nasal infections.

The etiology of the common cold has not been definitely established. No age, race, color, or sex has a corner on this disease. Climate, in the absence of the infecting organism, has no definite affect, as is evidenced by the fact that arctic explorers in intense cold are free from colds until their return to civilization.

There is evidence that colds are due to an invisible, unculturable, filterable, agent which is present only in the early stages of the disease. This view dates from Kruse's experiments in 1914; it has recently been confirmed by Dochez, Mills, and Kneeland, who were able to obtain 44% successful transmissions both in humans and apes.

Kerr and Lagan, on the other hand, were unable to infect students living in air-conditioned surroundings under ideal climatic conditions. They suggest that if a filterable virus **is** the cause, the environmental factors and the general body responses to them, must be considered in the preparation of the soil, and to a greater degree than heretofore.

While the etiology is most confusing, the symptoms are nearly always the same. The incubation period is from 1 to 4 days. The first general symptoms are a sense of chilliness, and even an actual chill, a decrease in the amount of perspiration, a dry feeling of the skin and mucous membrane of the nose and mouth, and excretion of increased amounts of urine. This first stage of the disease is followed immediately by the local manifestations of sneezing, rhinitis, congestion of the turbinates, obstruction to breathing, impairment of drainage, and frequently loss of the sense of smell. During this period there is **no increase in leucocytes** and **no fever;** two important points!

One to 3 days later purulent discharge appears and this normally continues for from 1 to 3 weeks, depending on, the virulence of the organism, the resistance of the patient and the spaciousness of the nasal cavity. If untreated the discharge may continue for the rest of the patient's life.

Pathology: "Fink" in 1927 took biopsies from the mucous membrane of individuals suffering from various stages of acute head colds and found the following interesting phenomena:

In the early stage, before the purulent discharge appeared, there was marked edema and increase of eosinophiles in the stroma, and in some cases a marked dilation of the cavernous sinus blood vessels in the turbinates; there were no polymorphonuclear neutrophilic

leucocytes, no dilation of the ordinary arteries and veins, no abnormal increase in the lymphoid cells or eosinophiles within the lumen of the arteries and veins, and no bacteria under the epithelium. Thus, in the early stages, none of the classical signs of bacterial infection were apparent in the nasal mucosa; the picture was typical of an acute allergic reaction. Fink, therefore, drew the conclusion that the early symptoms of the acute cold were the result of nerve reflex.

With the appearance of purulent discharge the feeling of congestion in the nose is as a rule relieved. At this time the polymorphonuclear neutrophilic leucocytes and dilated capillaries containing them appear close under the epithelium. There is less interstitial edema, and the eosinophiles diminish; there is also a marked increase in the lymphocytes, a general leucocytosis, and fever. This is the typical pathological picture of infection.

With the subsidence of the purulent discharge and the return of the mucosa to an average resting state, the polymorphonuclear leucocytes disappear completely and an occasional eosinophil reappears. "Fink" states that in a patient who has had repeated purulent colds there frequently results a permanent relative increase in plasma cells, large round cells, numerous forms of transitional plasma cells and connective tissue. Thus hyperplasia begins, and the foundation for the chronic infection is laid.

With the work of Fink, Kerr, and Dochez in mind I would like to present the following hypothesis:

Firstly, the common cold in its early stages at least is primarily a transient allergic manifestation.

Secondly, this allergy develops because of a filterable virus made active by the failure of the body to adjust itself to unfavorable climate and environment.

Thirdly, the purulent discharge follows the invasion of the tissues by a variety of bacteria superimposed on a vulnerable, allergically prepared mucous membrane. These bacteria may be present within the body itself—in the sinuses, tonsils, or adenoids—or they may be introduced from without.

Fourthly, most of the serious complications are due to the secondary, and not to the primary invaders.

The allergic theory is substantiated by the nasal congestion with watery discharge from the nose and eyes, the sneezing, lack of fever, the marked increase in eosinophiles in the stroma and secretion, no polymorphonuclear leucocytes, and no bacteria in the tissues.

The rational of the treatment which we have used for the past several years is based upon the assumption that this theory is correct. I believe, and we have case histories of many patients which seem to substantiate this belief, that by early treatment the allergic state can not only be shortened, but that the purulent stage can many times be entirely prevented.

Treatment: The general management of a patient suffering with a cold should be with the internist or the pediatrician, but the local treatment certainly should be left to the rhinologist. Unfortunately the clinician rarely calls the rhinologist to see an acute head cold unless a well developed sinusitis is present, and by that time the infection has become general with nasopharyngitis, laryngitis, bronchitis, etc. Personally, I think that the early local treatment of the common head cold is just as important as the local treatment of Vincent's angina, prostatitis, or athlete's foot, and that the earlier the local treatment is instituted the shorter the attack, and the less severe the complications.

Following is an outline of the general plan of treatment we now use:

When the patient is seen early the usual advice as to elimination, room temperature, diet, etc., is given, with instructions to take every 3 hours a capsule containing ¼ grain ephedrine, ⅜ grain luminal, and 1/600 grain atropine.

Ephedrine internally has a definite action in reducing swelling of the congested nasal mucosa.

Luminal gives the patient a feeling of well being and tends to check unpleasant general nervous reactions from the ephedrine.

Atropine lessens excessive nasal secretions and stimulates the sympathetic nervous system, thus aiding in diminishing the nasal congestion.

Active local treatment is begun at the first sign of nasal congestion, and aims at the establishment and maintaining of free aeration

and free drainage. We attempt to accomplish these by depleting the congested nasal mucous membrane, by stimulating the vaso-constrictors with early return of the blood vessals to normal, and stimulating the cilia to removal of excess mucus.

Normally there is a protective blanket of mucus covering the ciliated epithelium, but when the mucus becomes too abundant the action of the cilia is choked, and the bacteria then grow under ideal conditions.

Regardless of the severity of the attack, and the age of the individual, the local treatment is as follows:

Thin strips of cotton saturated with a solution of 5% neosilvol and ¼% isotonic buffered solution of neosynephrin (buffered to an Hp. of 7.3) are gently packed into the nose with a bayonet forceps; the excess solution of the strips will run into the nasopharynx. The strips should fit snugly, but not tightly. The first strip is placed between the septum and the middle turbinate, as high up and as far back as possible. The second strip is placed between the inferior turbinate and the septum, extending well back and up into the middle meatus. When space in the nasal cavity permits, a third strip is placed low down on the floor of the nose in contact with the inferior turbinate throughout its entire length.

The strips are allowed to remain in place for about 10 minutes. The patient is then instructed to blow the nose gently; usually a copious amount of mucus is expelled. If the mucus cannot be blown out, the nasal cavity is sprayed with warm Ringer's Solution, which not only dislodges the mucus, but seems to have a tonic effect upon the nasal mucosa. Examination of the nasal cavity then shows the mucous membrane greatly depleted with space for drainage and breathing.

According to Tainter neosynephrin is by far the best shrinking agent for the nasal mucosa, being about 12 times as effective as ephedrine in producing ischemia, and the duration of its action is from 3 to 4 times as long. Our results verify his.

The mixture of neosilvol and neosynephrin is hydroscopic when in contact with the nasal mucosa, and has the following advantages: Excess water is actually removed from the tissues; the vasoconstriction is marked and long sustained, thus lessening absorption of toxins, tending to prevent pressure headaches; free ventilation and drainage is prolonged, from 8 to 12 hours; the mixture is non-irritating in most cases, causes no burning nor stinging sensation, and can be used over a long period of time without losing its effectiveness; and there is no general reaction to the combined drugs; occasionally a sensitive individual may develop rather severe local vasodilation and hay fever symptoms after the pack.

Children, even as young as 4 years, can easily be treated by this method if patience and gentleness are used. After the first 2 to 3 treatments most children cooperate readily and frequently become better patients than their parents. Younger children must be held since the treatment is not pleasant because of a tickling sensation.

The ideal treatment is twice a day for the first few days, then once a day as the symptoms subside, and finally the interval between treatments is lengthened depending on the clinical appearance of the membrane and cessation of symptoms. The treatment is of value even after the purulent stage is well advanced because it facilitates drainage and relieves the nasal congestion. Let me emphasize that the earlier the treatment is begun, the shorter and milder the attack.

Home treatment consists of a spray containing ¼% isotonic neosynephrin buffered to 7.3 Hp used as frequently as necessary to maintain adequate nasal respiration.

Summary

Much can be accomplished in the prevention of chronic sinusitis by early treatment of its etiological factors.

This includes:

1. The correction of abnormalities.
2. The surgical correction of nasal malformations and obstructions to insure adequate breathing and drainage space.
3. Treatment of the allergic individual.
4. Establishing and maintaining free aeration and drainage by early treatment of the common cold with nasal packs saturated with a mixture of colloidal silver and isotonic neosynephrin.

The hypothesis is presented that all colds

in their primary stage are allergic manifestation, that the allergy develops because of a filterable virus made active by the failure of the body to accommodate itself to unfavorable climatic and environmental changes, that the purulent stage is due entirely to secondary invaders, and that any serious complications are due to these secondary invaders.

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ORVILLE HARRY BROWN: I congratulate Dr. Ashley on his splendid presentation. I agree with his conceptions. I am not a rhinologist, however—only an internist. (see the further remarks elaborated into a short paper following the next discussion.

DR. H. T. BAILEY: Dr. Ashley has shown you how a cold is the fore-runner of sinusitis, and that a nervous reflex causes a turgescence in the nose and throat. He and all of us admit that we are not certain what causes a cold.

My talk may sound more like the talk of a gastro-enterologist than an ear, nose and throat man. A few years ago our county society of Phoenix had a symposium on colds and this was our conclusion: Suppose, for example, a person starts from Phoenix to, say New York City or any place where he would be on a train for 3 to 4 days. The 1st day out he eats heartily at meals and between meals and takes no exercise; the 2nd day he does the same; the 3rd day he eats not quite so much but now has the entire alimentary tract loaded with undigested food. This food undergoes decomposition and forms by-products and toxins which the system absorbs. This develops a sluggish system for the patient and an engorged liver. He feels badly, is apathetic and perhaps has a headache. These toxins and by-products react on the mucus membrane of the nose, then as soon as the surface of the body is chilled, the mucus membrane of the nose reacts, is congested, and excretes mucus. This congestion and excretion of mucus in the nose acts as a culture tube for bacteria which may be present in the nose at that time. These bacteria develop toxins which are absorbed into the circulation, carried to the liver which is already engorged and sluggish on account of the undigested foods and toxins. The kidneys also are congested and can not eliminate freely. Thus the toxins and the impurities come back to the nose and the upper air passages. So around and around she goes and down and up, and comes out right here (pointing to the nose).

BACTERIAL AND ALLERGIC FACTORS IN COMMON COLDS

ORVILLE HARRY BROWN
Phoenix, Ariz.

(A discussion, slightly elaborated, of Dr. Ashley's paper).

Living organisms play a predominant part in colds. The germs may succeed in their attacks because they have high virulence, having been passed rapidly through many individuals—an epidemic type of organisms as swept the world in 1918-1919 and as the epidemoid type which prevails most of the time in densely populated areas.

The epidemic organisms are developed easily when large numbers of men are intimately grouped as occurred in the war camps. A boy arrived at a camp with a severe cold. His germs were soon deposited in the dish water, on door knobs, pens, pencils and coughed numerously into the atmosphere. Virgin susceptible soil was promptly found. The germs were soon distributed again, and again, many, many times with 20,000 to 60,000 men intimately associated in one post.

It is a law of bacteriology that when an organism is passed in rapid succession through a series of animals its virulence is stepped-up in proportion to the number of animal passed through and the speed with which it is transferred from one to the next.

If this theory of the influenza epidemic is correct there is not an influenza organism but influenza organisms. There have been many investigations and reports as to the influenza germ; one found a streptococcus, another a diplobacillus, a peumococcus, an influenza bacillus, a filterable virus and even an entirely new organism. It seems to me that is exactly what was to be expected.

Epidemoid organisms simply have not had the opportunity to be greatly stepped-up in virulence. When they find virgin (poor immunity) or fertile soil their attack is vicious, but not equal to that of the epidemic bacteria.

Another of my ideas is that a person may have colds, even frequently—from his own organisms. These usually will need help in getting started.

Any organisms, the epidemic, the epidemoid

or the personal type are helped by allergic changes in the sites where the colds start. The nose is the usual shock organ.

The food, having been consumed in too great a quantity, or being excessively allergenic because of being decomposed from various causes as I[1] have recently reported, or because the person is unduly sensitive to the pre-amino-acid stages of the food, causes an allergic reaction in the nose. Thus is prepared fertile soil in the nose for the growth of any type of bacteria.

Another idea of the causes of the allergic reactions, one which should especially interest the nose and throat specialists—is that retained bacterial products, and the mucous secretions in ethmoid or sphenoid cells or antrum decompose, become highly allergenic and under excessive pressure are forced into the nasal cavity and there set up a marked allergic edema. This edematous poorly nourished tissue makes a fertile soil for the growth of bacteria. The more virulent they are, the more they grow.

The lesson from this theory is that physicians generally should educate patients to continue with their nose and throat or allergic treatments or both as long as there are indications of nasal catarrh.

Nose and throat specialists tend to be either too radical or too conservative. If an antrum infection does not clear up with a dozen washings that does not mean that a window needs to be made at once but rather that more washings must be done—if need be for a year or more.

We all need to recognize the tremendous part that chemical disease—allergy—plays in colds and see that patients highly susceptible to them have the advantages of allergic studies and treatment.

I believe that an intensive research should be carried on for the susceptibility of the various organisms to various antiseptics; when a certain bacterium is found in an antrum for example that antiseptic to which that organism is most susceptible may at least be tried against it, providing of course that the solution is not too irritating to the mucosa.

To illustrate what I mean: I[2 3 4] have found that pneumococci are universally susceptible to quinine and easily killed by even highly dilute solutions both in the test tube and the patient. In other words quinine, I maintain, is a specific against pneumococcic pneumonia. It has no destructive effect on the many other types of bacteria with which I worked.

I repeat that it may be possible to find an antiseptic specific against each of the catarrhal organisms. A cold then would first have to be studied bacteriologically and the right antiseptic selected for its local treatment.

Colds are serious and need intensive study by rhinolaryngologists, laboratory workers, pathologists and allergists.

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RESOLUTION ON INSURANCE MEDICAL DIRECTORIES.

Adopted by the Arkansas Medical Society April 29th, 1936. Presented to the House of Delegates of the American Medical Association May 11th; approved by the Judicial Council May 14th and *adopted by the House of Delegates of the American Medical Association* May 14th, 1936.

WHEREAS, certain commercial interests are publishing medical directories, listing physicians by specialty and otherwise, as available for insurance and compensation work, and other professional services, and

WHEREAS, participation by listing in these lay publications merely serves for the profit of the promoters, and is furthermore technically indirect solicitation of patients,

THEREFORE BE IT RESOLVED, That the Arkansas Medical Society condemns these practices as unethical and forbids its members to continue listing their names in such directories, and

BE IT FURTHER RESOLVED, That the Arkansas Medical Society requests the House of Delegates of the American Medical Association to take similar action."

ANTIVENIN

Concurrent with the reports of more than 600 persons being bitten by the "Black Widow Spider" with a mortality record of 40, comes the announcement that E. R. Squibb & Sons are now supplying Antivenin (Anti-Black Widow Spider Serum). Widespread professional interest has been shown in methods of treating these bites, especially with the steady increase in the number of cases reported from southern, southwestern and western sections of the United States.

Antivenin is prepared by the hyperimmunization of sheep with repeated doses of venom from the black widow spider. The serum is standardized by determining its neutralizing effect when mixtures of it with venom are injected into young rats. Clinical reports upon this important product as well as information as to dosage and administration are contained in literature supplied by E. R. Squibb & Sons upon request.

Antivenin is available in ampuls of sufficient content to permit the withdrawal and administration of 10 cc. of the serum.

MEDICAL ANNALS OF ARIZONA

HEALTH AMONG THE NAVAJOS

SIDNEY J. TILLIM

(Continued from August issue)

Despite the best efforts of the physician, there will yet be opposition from medicine men, either for fear of losing their social hold over their people or of losing revenue. In their efforts to combat the invader they spread all sorts of lies. One instance is a young man who had suffered from tuberculosis of the skin for several years, without consulting a physician. I learned of his illness through an Indian from that district and went to see him without invitation. It was far from the hospital; physicians had seldom gone there. The family would not, at first, allow the patient to be seen. They would have nothing to do with the hospital or the white doctor. Medicine men had told them that in the hospital they cut off arms and legs, and often they murder Indians. After establishing that we were bent on a mission of mercy and that we actually had done good for Indians they knew, including medicine men, they allowed an examination of the patient. He was a pitiful sight; extreme emaciation, multiple ulcers and sinuses, and crippling to such an extent that his only means of locomotion was shuffling along on his buttocks. He was taken to the hospital and kept for several months, when the family insisted they must try one more "sing." The patient walked out of the hospital on crutches.

Once a medicine man called late at night, saying: "Doctor, I want to bring my children to the hospital tonight. I am afraid. They are sick and too many babies dying outside. Navajo medicine men don't do no good." It is quite certain this man never recommended such a procedure for others. In fact, a month later he objected strenuously to a physician's request to address a meeting, saying: "We don't need the doctor to talk to us here. We can talk to him in the hospital. We know where to find him. He don't have to talk here."

The real harm caused by these men comes from the perpetuation of superstitions and failure to recognize the limits of their usefulness as healers. Like the majority of non-medical healers in white communities, they are not diagnosticians. They do not speak of disease entities; they prescribe in terms of symptoms—headache, cough, fever, blindness, insomnia, bad dreams, etc. It is true that they have concoctions for the relief of many symptoms; these include cathartics, diuretics, antispasmodics, oxytocics, diaphoretics, and hypnotics. Often one finds several pots of simmering brew intended to combat different symptoms; for example, in an obstetrical case there may be one to prevent fever, one to check bleeding, and others. It is my conviction that they are to blame for much crippling and many deaths which could be averted by proper medical care. Time and again they call for physicians when the patients are about to die; the reason for calling a doctor at the last moment is to have an opportunity to shift the blame, or to gain the help of the agency or the local missionary for the burial. It is a considerable inconvenience for a Navajo to participate in a burial; he must isolate himself in his hogan for four days, followed by a cleansing bath, before he may again enter the family circle. Sometimes the patient is taken to the hospital so that he may die there, and thus save burning his hogan, as is the custom after a death. The Indian, contrary to popular views, does not extend his stoicism to dying. There is just as much crying and mourning for a deceased relation as among any white people. Except for the ultra-fanatic, they are not prejudiced against seeking the services of a white doctor if they have seen encouraging results from him in other cases. The chief opponents to the spread of modern medicine in the Navajo country are the medicine men; their practice brings them easy money and prestige. They know the minds of their people, and they fight the growing popularity of a new man; yet, once a physician gains a reputation his popularity grows. Indians are known to have followed physicians from one jurisdiction to another for services.

(Continued in October issue)

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OUR "FALL" MEETING

The clinical conference of the Southwestern Medical Association, announcement of which is in another column of this issue, is the only medical meeting other than those of the county societies to be held in our territory until next spring.

This is an intensive three-day post-graduate course which should interest every physician within a day's drive of El Paso during those days in November.

Every speaker is a prominent teacher. Much of the stuff they will "hand out" will be old to many if not to all of us, but the mere fact that one finds himself in agreement with great teachers is a compliment to stir one's ego and self assurance and should send him back to his home with a determination to make his public appreciate him all the more. It will be good for that inferiority complex.

Then too! There is the chance that the teachers may bring us something a bit new!

It is probably safe to say that it is a foregone conclusion that any physician, we care not where he come from cannot sit for three days listening to outstanding teachers without picking up a few helpful points.

Then too! You are not forbidden to visit and "talk shop" with your confreres! They'll give you ideas—some of them certain to be helpful.

We challenge any "doubting Thomas" of our physicians as to the value of this meeting to be a sport and make one experiment. Attend this meeting. Make an honest effort to absorb as much information as possible. Make notes on it in a neat permanent manner in a neat appearing book obtained for the purpose. When you get home review the material so as to keep it fresh in your mind. Make use of it when opportunity offers. When the time for the 1937 meeting arrives, figure up the cost of attending this meeting, loss of time and all; then do a little figuring in your head and see if you didn't make at least a good rate of interest on your investment.

Then too! Think of the new friends, the more satisfied patients and your own greater satisfaction in your improved work as a result of attending the conference!

Can you afford to stay away?

PREPARATION OF MOTHERS' MILK

On July 24th of this year the Mothers' Milk Bureau of the Children's Welfare Federation of New York City announced the adoption of a new process of quickly freezing mothers' milk so as to preserve it.

The patent for the process is owned by the Borden Company and was turned over to the Children's Welfare Federation by James A. Tobey, director of the Health Service of the company. The inventor of the process is Washington Platt, a scientist in Syracuse, N. Y. He says the milk is frozen under conditions so that upon thawing the natural emulsion will remain substantially unbroken and the other characteristics will remain sufficiently unchanged so that the thawed product will be suitable for infant feeding. The milk is put into small molds and covered. Dry ice is used to quickly freeze the milk into wafers which are then put in sterile bottles and stored at a low temperature.

Dr. Walter H. Eddy of Teachers College, Columbia University, showed that frozen human milk as compared with the unfrozen milk

has lost none of its vitamins. Moreover, frozen human milk does not differ from fresh milk in total solids, fats, carbohydrates or proteins.

Sir Henry Wellcome, one of the founders of the Burroughs-Wellcome Co., died in London on July 5, 1936, in his 83rd year.

Mr. Wellcome was American born and an intimate of Dr. William Worral Mayo, father of the famous Mayo Brothers. It was Dr. Mayo who encouraged Mr. Wellcome to study pharmacy.

He was born in a log cabin near Almond, Wisconsin, about 125 miles from Milwaukee, the son of an itinerant missionary, the Rev. S. C. Wellcome, who travelled in a covered wagon in Wisconsin and Minnesota preaching to the Indians.

Henry Wellcome started as a pharmacist in Rochester, Minn. in 1868, graduating from the Philadelphia College of Pharmacy in 1874. He was sent to London as a representative of an American drug firm and in 1880, with the late Silas M. Burroughs established the firm of Burroughs-Wellcome and Co.

Mr. Wellcome's field of interest was large. He was a member or an honorary fellow of 22 organizations anthropologic, zoologic, archaeologic, geographic, pharmaceutic, medic, etc. His organization was responsible for a large number of important original researches.

He became a British subject during the World War. He was knighted by the late King George the Fifth in 1932.

The **American Board of Obstetrics and Gynecology** will hold its next written examination and review of case histories of group B applicants in various cities in the United States and Canada on Saturday, November 7, 1936. Application blanks and booklets of information may be obtained from Dr. Paul Titus, secretary, 1015 Highland Bldg., Pittsburgh, Pa. Applications for this examination must be filed in the secretary's office 60 days prior to the scheduled examination.

Dr. C. G. Salsbury, medical director of the Sage Memorial Hospital of Ganada, Ariz., has arranged a **Harlow Brooks Memorial Javajo Clinical Conference** which is to become a **yearly affair.** It opened August 31-Sept. 1. A glimpse at the program indicates that it was a splendid two-day postgraduate course. Among the speakers were: Milo K. Tedstrom, Santa Ana, Calif., Percy T. Magan, W. W. Peter, Ariz., and Malcolm R. Hill of Los Angeles.

TO ALL PHYSICIANS OF THE SOUTHWEST

The program committee has obtained emminent men to conduct our next annual clinical conference. The program will be interesting and instructive and one none of us can afford to miss. See the list of speakers.

The meeting will be held in El Paso, Nov. 19, 20 & 21. Now is the time to make your plans to be there.

The program committee, is necessarily limited in its endeavors by the size of our membership, hence the greater the number of paid up members we have the more funds to reach out with and bring in the leading men of the country to conduct our conferences. With the support of every physician in the Southwest, we can make our annual clinical conference one of the best in the country.

It is impossible for the chairman and members of the membership committees to contact every one and we earnestly solicit the assistance of all to enlarge our membership. If you were not present at our last conference, ask some one who was there about it. All those who did attend last year, kindly tell every one you see the type and value of the meetings we are having.

The annual dues are only $3.00. The Board of Governors have ruled that all non-members registering at the meeting will be charged an extra $3.00.

For your convenience the following is a list of the chairman of the membership committees in each section.

Arizona—Dr. Howell Randolph, Professional Bldg., Phoenix.

El Paso and Western Texas — Dr. B. F. Stephens, Martin Bldg., El Paso, Texas.

New Mexico—Dr. Wm. H. Woolston, 1st Nat. Bank Bldg., Albuquerque, and

Northern Mexico—Dr. Frank T. Hogeland, Cananea, Sonora, Mexico.

They will all be glad to accept your applica-

tion. Make your plans now to attend this clinical conference for it is one investment which will pay you good dividends.

C. R. SWACKHAMER, M. D.
Chairman, Membership Committee.

The officers of this association have promised a bigger and better program for the 1936 meeting and the program committee has certainly fulfilled this promise as evidenced by the tentative draft released below. Dr. Rheinheimer and his associates have prepared for our regular November session in El Paso, a program that can in every way qualify as a post graduate short course.

We have a greater number of speakers, a wider geographical distribution of them, a representation of different teaching institutions than we have had at other sessions and the addition of speakers in three specialties that we have not previously had. namely obstetrics and gynecology, x-ray and clinical laboratory.

The program committee has kept constanatly before it, the subject matter of the previous 3 sessions and have insisted that the subject matter chosen for this Fall's discourses be not a repetition of any program of the past 3 years.

A comparison of our program with those of the clinical conferences of Oklahoma City, Dallas, Houston and San Antonio. makes us extremely proud to submit this program to our membership, realizing that there will be nothing better west of the Mississippi for Fall sessions than that prepared by our program committee.

We extend hearty congratulations to our program committee: E. W. Rheinheimer, chairman; Meade Clyne, Tucson; E. J. Cummins, El Paso; Fred B. Evans, Alamogordo; F. T. Hogeland, Canonea; John L. Lamone, Jr., Albuquerque; Howell Randolph, Phoenix; Stephen A. Schuster, El Paso.

The Speakers

Dr. Harold Brunn, San Francisco: General and Chest Surgery; Professor of Surgery, University of California Medical School; Member of American Surgical Association, Western Surgical Association, Pacific Coast Surgical Association, American College of Surgeons, and American Association for Thoracic Surgery.

Dr. Thomas E. Carmody, Denver: Otology-Laryngology-Rhinology; Past President of the American Laryngological, Rhinological and Otological Society; Member of, American Academy of Ophthalmology and Oto-Laryngology, American Laryngology Association, American Otological Society, American College of Surgeons, American Board of Otolaryngology certificates, and Bronschoscopic Society.

Dr. Ralph A. Kinsella, St. Louis: Internal Medicine, St. Louis University; Member of Central Society for Clinical Research; Association of American Physicians; American College of Phyiscians, and American Society of Clinical Investigation.

Dr. James T. Case, Chicago: Radiology; Professor, Northwestern University Medical School; Member of Western Surgical Association; American College of Surgeons; American Gastro-enterological Association; Radiological Society of North America; American College of Radiology and American Radium Society.

Dr. Warren T. Vaugan, Richmond, Va.: Internal Medicine; Editor of Journal of Laboratory & Clinical Medicine; Member of American Society of Clinical Pathologists.

Dr. N. F. Ockerblad, Kansas City, Mo.: Urology; Associate Clinical Professor, University of Kansas; Member of American Urological Association and American College of Surgeons.

Dr. Willard R. Cooke, Galveston: Professor of Obsterics and Gynecology, University of Texas; Member of, American Association of Obstetrics, Gynecology and Abdominal Surgery, Board of Obstetrics and Gynecology and Central Association of Obstetrics and Gynecology, and Fellow of American College of Surgeons.

Dr. Isidore Cohn, Professor of Clinical Surgery, Tulane University; Member of, American College of Surgeons, Southern Surgical Association.

The Rocky Mountain Tuberculosis Conference is scheduled for Albuquerque, N. M., September 28-29 of this year. The program is complete and will be found in another section of this issue.

Several of our men are especially interested in this conference. Among those concerned with the program are Drs. Chas. W. Mills, Tucson, Felix P. Miller, El Paso, T. C. McCamant, El Paso, J. R. Earp, Santa Fe, R. L. Homan, Jr., El Paso, Robert O. Brown, Santa Fe, LeRoy S. Peters, Albuquerque, J. W. Flinn, Prescott, Sam H. Watson, Tucson, and Walter I. Werner, Albuquerque.

Pasteurization of milk in Phoenix, Arizona, is now compulsory by city ordinance. All of the dairies are complying with the requirements or will be ready to supply pasteurized milk at the date the ordinance goes into effect. This is a step forward and we believe that there are several members of the Maricopa County Medical Society who deserve special commendation for their work in behalf of this ordinance. Among those who should be mentioned are: Drs. Fred Holmes, promotor of the ordinance, F. J. Milloy, member of the city board of health, and R. W. Hussong, city health officer.

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ROCKY MOUNTAIN TUBERCULOSIS CONFERENCE

Franciscan Hotel
Albuquerque, New Mexico
September 28, 29, 1936.

Monday

Medical Section

Dr. Charles W. Mills, presiding

9:00 A. M.—1200

Surgical Collapse of the Lung:
R. J. Friel, M. D., Salt Lake City, Utah.

Value of Phrenic Nerve Interruption as the Sole Procedure in Pulmonary Tuberculosis:
J. M. Odell, M. D., Sup't, Eastern Oregon State Tuberculosis Hospital.

Some Phase of Thoracoplasty:
C. F. Sough, M. D., Colorado Springs, Colo.

When Should Artificial Pneumothorax Treatment Be Discontinued?
Munford Smith, M. D., Howard W. Bosworth, M. D., Barlow Sanatorium, Los Angeles, California.

Anesthesia to the Tuberculous:
Arthur E. Guedel, M.D., Professor of Anesthesiology, Unversity of Southern Californa.

Sociological Section

10:00 A. M.—12:00

Finding the Case of Tuberculosis:
L. A. Dewey, M. D., Epidemiologist for New Mexico Bureau of Public Health.

What Comes After Case-Finding—From the Public Health Nurse:
Ada Taylor Graham, Ex-secretary of the Utah Tuberculosis Association.

From the Work Agency:
Agnes Donaldson, Family Welfare Society. Colorado Springs, Colorado.

From the County Physician:
T. C. McCamant, M. D., County Health Officer, El Paso, Texas.

From the Cripple Children Program:
Marie Wickert, Assistant Director, Division of Cripple Children, Colorado State Department of Health.

Joint Luncheon

12:00-2:00 P. M.

Significance of Tuberculosis in Childhood:
J. A. Myers, M. D., Dep't of Preventative Medicine and Public Health, University of Minnesota.

Joint Session, Sociological and Medical

Rosslyn Earp, M D., presiding, Director of Public Health, State of New Mexico.

2:00-5:00 P. M.

Trends in the Care for the Indigent Sick by Public Agencies
In New Mexico: Mr. Fay Guthrie, Director of Security and Public Assistance.
In Colorado: Robert Cleere, M. D., Director Department of Public Health.
In Arizona: Miss Florence Warner, Director of Department of Public Welfare.
Summary: Robert Brown, M. D., President, New Mexico Tuberculosis Association.

Socialized Medicine as It Affects the Private Sanatoria:
R. B. Homan, Jr., M. D., The Homan Sanatorium, El Paso, Texas.

Tuesday

Medical Section

Dr Charles W Mills, presiding

9:00 A. M.—12:00

Tuberculosis in the Aged:
John W. Shurman, M. D., Associate Professor of Medicine, College of Medical Evangelists, Los Angeles, California.

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★ *Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*
Laryngoscope, 1935, XLV, 149-154
N. Y. State Jour. Med., 1935, 35, No. 11, 590
Arch. Otolaryngology, Mar. 1936, Vol. 23, No. 3, 306-309

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BOU

Does Tuberculin Deserve a Place in the Therapy of Tuberculosis? Thirty Years in Retrospect:

Max Rothchild, M. D., and Harry C. Warren, M. D., The California Sanatorium for the Treatment of Tuberculosis, Belmont, California.

Discussion by Sam'l H. Watson, M. D., Tucson, Arizona.

The Virulence of Tubercle Bacilli:
H. J. Corper, M. D., Research Department, National Jewish Hospital, Denver, Colorado.

Empyema Complicating Pneumothorax Therain Pulmonary Tuberculosis:
Capt. Frank L. Leever.

Discussion by Maj. George F. Aycock, Fitzsimmons General Hospital, Denver, Colorado.

Management of Oleothorax Therapy in the Treatment of Pulmonary Tuberculosis:

Leslie P. Anderson, M. D., Oakhurst Sanatorium, Elma, Washington.

Sociological Section

Mrs. Francis C. Wilson, Secretary, presiding Tuberculosis Association of New Mexico.

10:00 A. M.—12:00

Educating the Public About Tuberculosis—
Through the Christmas Seal Sale:
Mrs. Bruce Parker, President, Weld County Public Health Association, Greeley, Colo.
Through Schools:
Mrs. Grace Corrigan, State Rural School Supervisor of New Mexico.
Through Local Organizations:
Ruth Connely, Executive Secretary, Tuberculosis Association of New Mexico.
Through Publicity:
Rabbi A. Lincoln Krahn, Albuquerque, N. M.

Joint Luncheon

LeRoy S. Peters, M. D., presiding
Albuquerque, New Mexico.

12:00—2:00 P. M.

Distribution of Tuberculosis Mortality in Western United States:
C. C. Dauer, M. D., Department of Preventitive Medicine, Tulane University of Louisiana.

Joint Session, Sciological and Medical Sections
LeRoy S. Peters, M. D., presiding.

2:00-5:00 P. M.

Comparison of Visible Light, Uultraviolet Light, and Other Climatic Factors on the Mortality of Tuberculosis:

C. H. Boissevain, M. D., Colorado Foundafor Research in Tuberculosis.

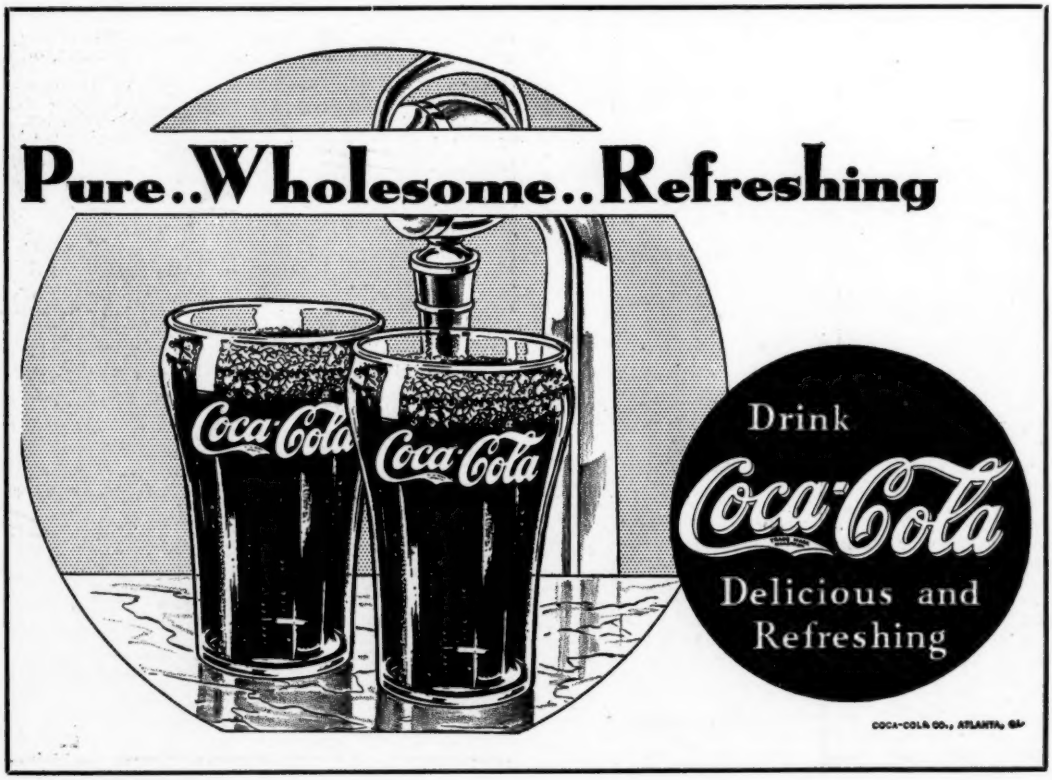
The Physiological Action of Climate and Its Application in the Treatment of Tuberculosis:
John W. Flinn, M. D., and John S. Flinn, B. Sc., Prescott, Arizona.

Discussion by Sam'l H. Watson, M. D., Tucson, Arizona.

Diagnosis of Tuberculosis in Private Practice:
Julius O. Arnson, M. D., The Tucson Clinic Tucson, Arizona.

Diagnosis of Tuberculosis in Private Practice:
Julius O. Arnson, M. D., Bismarck, North Dakota.

Tuberculosis in the Child—Its Relation to Tuberculosis in the Adult:
Charles V Berley, M. D., The Tucson Clinic, Tucson, Arizona.



Tuberculosis Survey of High Schools and Higher Educational Institutions in New Mexico:

Dr. Walter I. Werner, Albuquerque,, New Mexico.

Discussion: Dr. LeRoy Peters, Albuquerque, New Mexico.

NEWS ITEMS

Dr. Frank J. Milloy of Phoenix, vacationed in California during the month of August.

Dr. Howell Randolph spent part of July and August in Colorado, mostly in and about Estes Park.

Dr. B. B. Moeur, Governor of Arizona, was busy campaigning for re-election.

Dr. A. M. Tuthill, major general of the National Guard and adjutant general of the State of Arizona, has had over 23 years service as an Arizona National Guard officer. He seems completely recovered from a recent appendicitis operation and is back at his work.

Dr. C. M. Crone of Miami, Ariz., staff surgeon in the Miami Inspiration Hospital, with Mrs. Crone had a vacation trip to Mexico City. They were there during the time of the elevator operators' strike and as they occupied a room on the sixth floor of a hotel they were very much annoyed.

Dr. G. F. Manning, director of the Gila County Health Unit, has been active examining pre-school children during the past month.

Dr. J. D. Hamer, president of the Arizona State Medical Association, has been appointed by the Phoenix City Commission as a member of a committee to select an accredited expert to carry out the contemplated Phoenix public health survey. This is to be done in conjunction with the state.

Dr. and Mrs. W. P. Sherrill of Phoenix have completed a new home on 28th street, just north of Indian School road. The doctor will have plenty to do as he has ten acres surrounding his home.

Dr. E. A. Gatterdam of the Phoenix Clinic Phoenix, was called to LaCrosse, Wisconsin, on account of the death of his father which occurred unexpectedly. He returned home September 4th.

Dr. Trevor G. Browne of the Phoenix Clinic vacationed at the Foxboro Ranch near Flagstaff during August.

Dr. and Mrs. E. L. Hicks of Phoenix spent a short vacation in the White Mountains in the Greer district, where Dr. Hicks was convalescing from a recent automobile accident.

Dr. and Mrs. Nelson D. Brayton have been living in their summer cabin in the Pinals and entertained at frequent intervals during the summer.

The Eighth Annual **training course for Medical Department Reservists** of the Army and Navy is to be held at the Mayo Foundation, Rochester, Minnesota, from October 4 to 17, 1936. The course has been so popular during the past 7 years that it is now necessary to limit the enrollment to 200.

The morning hours of the 2 weeks will be devoted to professional work in special clinics and study groups. Officers in attendance may select the courses they wish. The afternoons and evenings will be devoted to a medico-military program. This training is on inactive duty status and is without expense to the government. Enrollment is open to all Army and Navy reservists of the medical departments in good standing. Applications should be submitted to the Surgeon of the Seventh Corps Area, Omaha, Nebraska or the

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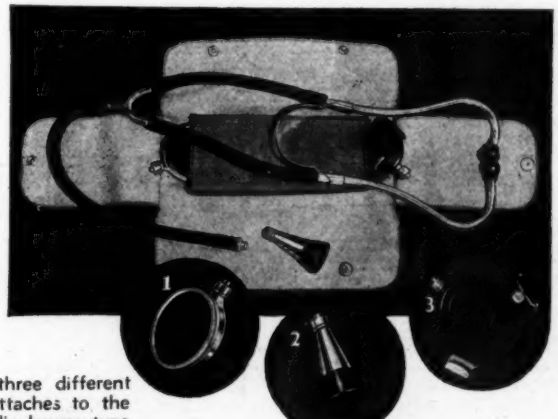

The new B-D Triple Change Stethoscope provides three different types of chest pieces, any one of which instantly attaches to the binaural unit. The chest pieces are: Ford type bell, diaphragm type metal and the smaller diaphragm type Bakelite with bracelet as used for blood pressure readings. The advantages are obvious.

The bell type chest piece is most efficient for low pitched murmurs and breath sounds. The diaphragm type metal is best for high pitched murmurs, foetal heart sounds, etc. It has a decided advantage in pneumonia cases because it can easily be slipped down the patient's back in the palm of the hand. Diaphragm type Bakelite chest piece eliminates metallic resonance and is supplied with bracelet for blood pressure readings . . . A suede pouch carries the outfit with three chest pieces. The units may be purchased as needed. Prices are listed at the right.

PRICES of individual units when purchased separately:

Binaural unit	$3.00
Ford type bell chest piece	.75
Bakelite chest piece (with or without bracelet)	.75
Metal chest piece (large size)	1.25
Suede cloth pouch	.50
TOTAL	$5.25

PRICE of entire outfit purchased in one unit $4.75

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Surgeon, Ninth Naval District, Great Lakes, Ill. The Surgeons General of the Army, Navy, and Public Health Service will probably be in attendance at least a portion of the time.

Dr. Joseph M. Greer flew to Ganado and attended the Harlow Brooks Memorial Clinical Conference. He reports that there was an excellent program and that there were 25 to 30 physicians in attendance. The thought is offered that probably in the future many Arizona and New Mexico physicians will plan a short summer vacation at the time of this conference.

Dr. Clarence E. Yount of Prescott attended the Clinical conference at Ganado during August.

Dr. Gerhard Kaemerling, who has been a frequent visitor to Phoenix and who has resided at 2032 North Alvarado road, was found dead in his hotel room in San Diego where he was spending the summer. He died apparently from a heart attack; it is reported that he had had heart trouble for a long time.

Dr. Aaron Berger has been camp physician to the C.C.C. camp, which has been stationed in the Grand Canyon. He recently had to take care of several boys who were caught in a slide and suffered numerous cuts and bruises; good recoveries were made.

Dr. Frederick P. Perkins of Tucson, major in the medical department of the Arizona National Guard, was encamped at Fort Alexander M. Tuthill, near Flagstaff in August.

Dr. Fred G. Holmes has been named a member of the committee to make a health survey of the city and state.

Dr. and Mrs. K. M. Gilbert of Chandler, Ariz., recently returned from a vacation spent in Long Beach and San Diego.

Dr. George C. Truman, superintendent of Public Health for Arizona, addressed the Lions Club of Mesa early in August.

Dr. James M. Meason and his associate, Dr. Lawrence Von Pohle of Chandler, are having constructed a modern office building of 11 rooms.

Dr. James R. Moore, superintendent of the state hospital near Phoenix, addressed the Chandler Rotary Club upon the subject of the Arizona State Hospital. He especially stressed the great need of additional equipment and facilities for caring for the patients.

Dr. E. Payne Palmer of Phoenix left early in September for a trip to Europe where he is to address the Second International Congress of Scientific and Social Campaign Against Cancer.

Dr. J. Rosslyn Earp of Santa Fe, N. M., was elected vice-president of the western branch of the American Public Health Association which was held the latter part of June at Salt Lake City, Utah. The western branch of the American Public Health association selected Phoenix for its 1937 convention city.

Dr. J. S. Gonzales of Nogales, Ariz., addressed the Lions Club at one of its weekly luncheons during June.

Dr. Alvin Kirmse, Tucson, captain in the Arizona National Guard Medical Department has been in encampment in Fort A. M. Tuthill during August.

Dr. James E. Redden of Casa Grande, captain in the Arizona National Guard Medical Department has been in encampment in Fort A. M. Tuthill during August.

Dr. Guy French has been ill in the St. Joseph Hospital for the past few weeks.

Dr. Floyd Sharp has been ill since the first

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January 4, to February 13, 1937.
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Surgery, Gynecology and Obstetrics, beginning May 10, ending June 5, 1937.

Tropical Medicine and Parasitology, beginning June 14, ending July 24, 1937.

COURSES leading to a higher degree are also offered.

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of August in the Good Samaritan Hospital. He is at home now and doing nicely.

Dr. A. E. Cruthirds of Phoenix took a clinical course in ophthalmology and oto-laryngology at Denver, Colorado, July 27-August 7, 1936.

Dr. Kimball Bannister of Phoenix, played tournament golf in California during his vacation there.

Dr. Mayo Robb took his family over to San Diego and had a weeks vacation with them.

Dr. Henry T. Franklin and family toured Yellowstone, Zion and other National Parks, and reported an enjoyable trip.

Dr. H. L. Brehmer of Albuquerque, vacationed in California during August.

Dr. W. H. Woolston of Albuquerque, spent a part of his summer on the Pacific coast.

Dr. P. G. Cornish and his family of Albuquerque, visited Nova Scotia during the summer.

Dr. L. S. Peters of Albuquerque, took time off this summer to rest up along the Pacific coast.

Dr. L. B. Cohenour forsook his daily grind for several weeks and explored California.

Dr. J. W. Hannett and family of Albuquerque visited in New York City during the hot months.

Dr. E. E. Royner of Albuquerque, spent his vacation in California.

Dr. L. F. Elliott of Albuquerque spent several weeks in California during the hot months.

Dr. George Thorngate, Phoenix, was in Wisconsin with his family during August.

The editor has had among the papers for publication in Southwestern Medicine, one entitled "Etiology and Treatment of Chronic Arthritis." It has no name. Will the author please come forward and leave his name?

The 21st International Assembly of the **Interstate Post-graduate Medical Association of North America, meets** under the presidency of Dr. David Riesman of Philadelphia, October 12-16 with preassembly clinics on Saturday, Otocber 10 and post-assembly clinics Saturday, October 17 in the hospitals of St. Paul.

The aim of the program committee, Dr. George Crile, chairman, is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical science. The program has been carefully arranged to meet the demands of the general practitioner, as well as of the specialist. Extreme care has been given in the selection of the contributors and the subjects of their contributions.

A hearty invitation is extended to all members of the profession in good standing in their state provincial societies to be present to enjoy the hospitality of the medical profession of St. Paul, and the excellent program. A registration fee of $5.00 will admit each member in good standing to all the scientific and clinical sessions.

A list of the distinguished teachers and clinicians who will take part on the program may be found on page 364.

Among these names we delight in mentioning: Drs. Russell L. Haden, who will speak on rheumatoid arthritis; Emil Novak on relation of the endocrine glands to sterility; Loyal Davis on neurological surgery; W. Wayne Babcock on practical points in clinical surgery; Walter E. Dandy on diagnosis and treatment of brain tumors; John F. Erdmann on tumors of the breast; George Draper on the pyschobiology of the peptic ulcer patient; David Riesman on treatment and guidance of patients with damaged hearts; Hugh H. Young on tumors of the bladder; Donal C. Balfour on carcinoma of the stomach; George Crile

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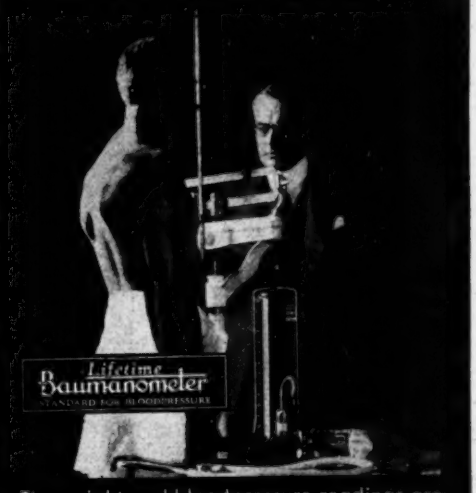

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on genesis and surgical treatment of essential hypertension; Frank H. Lahey on indications for and the surgical treatment of peptic ulcer; Leonard G. Rowntree, subject unannounced; Hugh Cabot on cryptorchidism; Robert A. Cooke on allergic diseases; Chevalier Jackson on the early diagnosis of bronchogenic carcinoma; Lawrence T. Post on ophthalmic consultations in a general hospital; Irving S. Cutter, general therapeutic methods for the protection of patients in the extremes of life; Elliott P. Joslin, protamine insulin; Dean D. Lewis, on the diagnosis of bone lesions; Cary Eggleston, on treatment of the elderly chronic cardiac; William J. Mayo, subject unannounced; and Andrey C. Ivy, the applied physiology of the spinchter of oddi.

The Interstate Post-graduate Association is supplying an excellent program and should attract the attention of the men of our district.

A tuberculosis unit has been placed into operation in Arizona, brief mention of which was made a month or so ago. Drs. George C. Truman and George A. Hays, members of the Arizona State Health Department, deserve special commendation for this.

It consists of a Ford V-8 truck and trailer to transport the equipment. On the trailer is a complete x-ray laboratory with the most modern equipment available, including a dark room for the development of films. The trailer is 17 feet long, 7 feet wide and approximately 7 feet high. The equipment includes complete electrification for lights, sterilizers, electric fans, scales for weighing the children, a curtained dressing room, a first aid kit and folding table for emergency use. The unit has a complete office, consisting of filing cabinets, typewriter and other office equipment, there is also a modern motion picture talking equipment with special screen and a supply of educational films. The windows have been equipped with specially built features to permit fluoroscopic examinations.

The purpose is to examine school children of all age groups for primary infections and active tuberculosis. The unit is not in any sense assuming the responsibility of the family physician in the diagnosis or treatment of any case. Skin tests will be given to those children whose parents sign written requests and at the same time give the names of their family physicians. If desired x-ray examinations will be made and the findings reported in such a way that the parent must consult the family physician for advice.

BOOK REVIEW

A TEXTBOOK OF PATHOLOGY by W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore; Sixth Edition, Entirely Reset; 1277 pages with 697 illustrations; Philadelphia and London; W. B. Saunders Company; 1936; Cloth $10.00 net.

This well and favorably known text on pathology has been completely revised and is just off the press. The author has laid special stress on the new development in endocrinology and allergy and about the vitamins. The book is now in reality a text of medicine based upon pathology; it is of such practical value to the practicing physicians that it should have a universal sale.

INTERNATIONAL MEDICAL ASSEMBLY

Interstate Postgraduate Medical Association of North America

Public Auditorium, St. Paul, Minn. OCTOBER 12-13-14-15-16, 1936

Pre-assembly Clinics, October 10; Post-assembly Clinics, October 17, St. Paul Hospitals

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Chairman, Program Committee, Dr. George Crile; Managing-Director, Dr. William B. Peck
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FOREIGN ACCEPTANCES TO DATE:

Dr. Robert D. Lawrence, F.R.C.P., London, England.
Mr. Archibald H. McIndoe, F.R.C.S., London, England.
Mr. C. Naunton Morgan, F.R.C.S., London, England.
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WATER BALANCE (24 HOURS)	
Intake	*Outgo*
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SURGEONS prepare patients pre-operatively to prevent acidosis and post-operatively to protect nutrition. Karo serves this dual purpose. Given with a soft diet before operation the patient will better resist surgical acidosis. And Karo forced with fluids after operation provides vital energy the patient craves.

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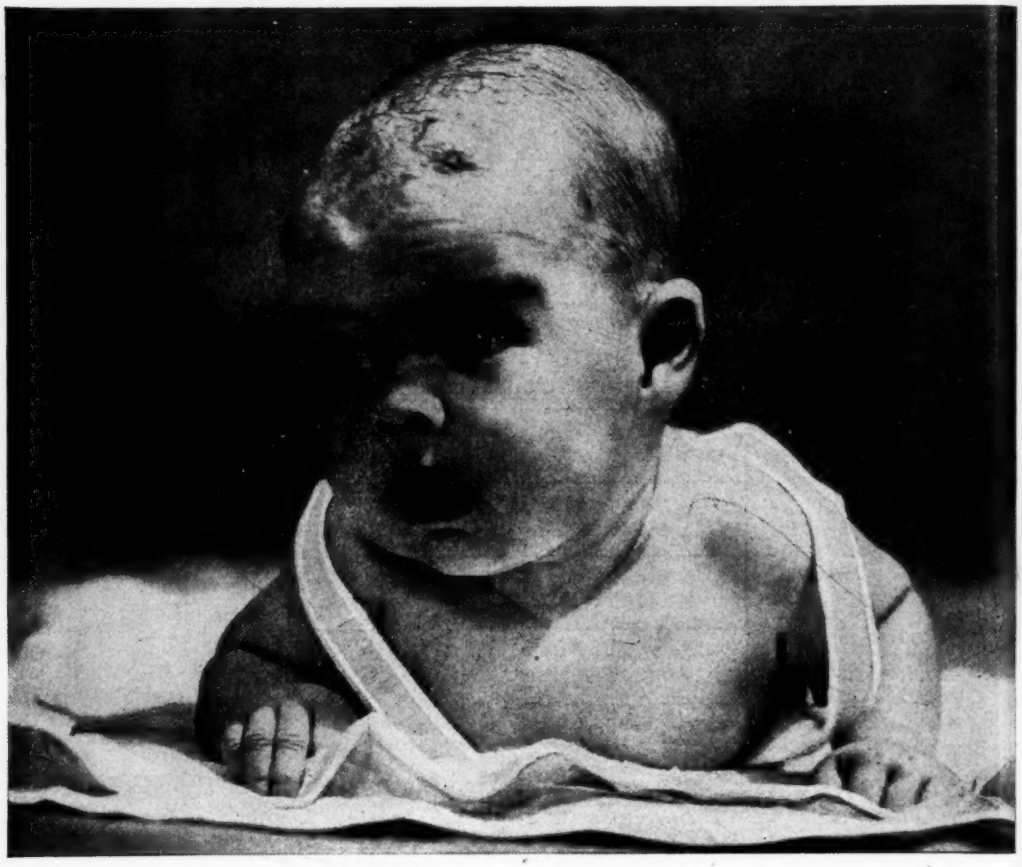
Corn Products Consulting Service for Physicians is available for further clinical information regarding Karo. Please Address: Corn Products Sales Company, Dept. , 17 Battery Place, New York City.

One of a series of advertisements prepared and published by PARKE, DAVIS & CO. in behalf of the medical profession. This "See Your Doctor" campaign is running in the *Saturday Evening Post* and other leading magazines.



Life is not all Milk and Rattles

Life is not as gentle to a tiny baby as it seems to be.

He comes into this world, never having breathed, never having eaten, never having digested food. Almost immediately, his little body must adjust itself to these vital functions.

If he is like most babies, he doubles his weight in the first few months; *triples* it in the first year. Every part of his body must make adjustments to accommodate this proportionately tremendous growth.

A new baby encounters disease-producing germs for the first time, and must build up resistance against them. If he does become ill, he is without the power to tell what the trouble is or where it lies. And when upset, he frequently is further endangered by the well-meant, but often harmful, suggestions of relatives and friends who "know *just* what to do."

Yes, infancy is so hazardous a period that, last year, the number of deaths among babies under one year of age was more than *three times* the number of deaths from automobile accidents.

The doctor is the one person equipped to give parents competent guidance through this dangerous period of a baby's life.

The doctor who sees the baby regularly can often detect sickness or physical trouble *in its early stages*. He can prescribe correct diet, proper hours of sleep, healthful and sensible handling of the habit problem. And he can start an important immunization program, to prevent such diseases as smallpox, diphtheria, and whooping cough.

Enlisting the doctor's help—entrusting growth, diet, and general health to his supervision—is one of the most sensible precautions parents can take in those dangerous days of the child's first year.

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